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THE TREATMENT OF RETRODISPLACEMENTS OF THE UTERUS

WALTER T. DANNREUTHER, M.D.

NEW YORK

The term retrodisplacement is used clinically to include both retroversion and retroflexion, although literally it implies a backward dislocation of the uterus irrespective of its relation to the vertical plane of the pelvis. A retroflexion differs from a version only in the break in alinement at the cervicocorporeal junction, and a distinction between the two is of only academic interest. Both alterations in position may be congenital or acquired; neither causes symptoms per se, and their treatment is identical. Retroversioflexions complicated by prolapse in the axis of the vagina constitute a separate problem and are not under consideration.

Congenital displacements are identified in most cases by the foreshortened anterior cervical lip and anterior vaginal fornix, a general hypoplasia of the internal pelvic organs, and the limited mobility of the uterus despite the absence of restraint from adnexal inflammatory involvements. They are frequently associated with endocrine derangements and discovered incidentally in young women who present themselves because of dysmenorrhea, menstrual irregularities or sterility. Such patients seldom complain of sacral backache, the chief symptom attributed to a retrodisplacement. On the other hand, in cases in which the lesion is acquired as a sequel of abortion or labor the symptoms commonly ascribed to the malposition do not appear until after the lapse of considerable time. Hence it is logical to assume that uncomplicated retrodisplacements do not produce symptoms; if they did, there would be a simultaneous symptomatic onset with the backward dislocation, and all patients with defects which have existed since birth would have sacral backache, leukorrhea or other local annoyances. The factors responsible for normal uterine poise and position are the dynamics of the intra-abdominal pressure exerted against the posterior surface of the corpus, the tonicity of the supporting ligaments and the integrity of the perineal musculature. Impairment of any or all of them may eventuate in an acquired retrodisplacement. When one sees patients with displacements that might have been prevented, ill fitting pessaries inserted upside down or back to the front or both, operations performed with failure to relieve symptoms notwithstanding a satisfactory anatomic end result, and recurrences after laparotomy, it is evident that the subject under discussion has not yet been worn threadbare. It therefore seems pertinent to emphasize the importance of differential diagnosis, to clarify the treatment indicated for various cases, to stress the therapeutic value of the much abused and often neglected pessary and to consider a few effective surgical procedures for patients in whom operation is really indicated.

Having recognized a retrodisplacement, it then becomes important for one to ascertain whether the malposition is congenital or acquired, whether the uterus is replaceable or immobilized and whether or not there is coexisting endocervicitis, parametritis, perimetritis, perimetritis, perimet

cation of remote foci of infection and orthopedic treatment to remedy abnormalities in the lower part of the spine even though a displacement persists, the time to discover this is before a futile laparotomy and not afterward. In other words, the major problem is not the recognition of a retrodisplacement but the differential diagnosis of the true source of the symptoms attributed to it.

A retrodisplacement may be treated prophylactically, expectantly, palliatively or surgically. Proper precautionary measures following abortion, labor and vaginal operations involving traction on the cervix will prevent many acquired malpositions. After therapeutic abortion, packing the uterus with iodoform gauze for forty-eight hours and administration of 1 cc. of solution of posterior pituitary twice daily for three days will hasten involution. After delivery, perineal lacerations should be repaired immediately to restore the integrity of the perineal musculature. Elevation of the patient's shoulders on the second day promotes free lochial drainage. Assuming the prone position for five or ten minutes several times each subsequent day facilitates forward gravitation of the uterus and exertion of the intra-abdominal pressure on the proper fundal area. Deep breathing exercises in the knee-chest position during the third and fourth postpartum weeks help to prevent diastasis of the abdominal muscles and also tend to throw the corpus forward.

TABLE 1.—*Symptoms Often Attributed to Retrodisplacements of the Uterus*

Symptom	Usual Cause
Sacral backache	Overloaded sigmoid and rectum, posterior parametritis, flat feet, focal infection, sacro-iliac joint, low spinal abnormalities
Menorrhagia	Passive congestion, endometrial alterations, tumors
Leukorrhea	Endocervicitis, endometrial hyperplasia, trichomonas vaginitis
Pain	Inflammatory products in the pelvic structures
Pelvic dragging	Cystocele, rectocele, subinvolution
Dyspareunia	Uterine or adnexal fixation, prolapse of ovaries
Repeated abortion	Incarceration, constitutional disease, endocrine dysfunction
Sterility	Husband, tubal disease, endocrine derangements, endocervicitis

Regular and continued breast feedings reflexly stimulate pelvic involution and should be urged for this as well as other reasons. If all patients are reexamined three, six and twelve weeks after abortion or parturition, retrodisplacements will be detected promptly. It is axiomatic that the farther back the cervix, the farther forward the corpus. Hence the importance of replacing the uterus bimanually and holding the cervix back in the pelvis with a strip gauze vaginal pack, pressed firmly against the portio, after operations such as curettage and trachelorrhaphy, which necessitate pulling the uterus into the vaginal plane.

In addition to congenital displacements which can be safely ignored, some freely mobile retroversions of long standing are found to be symptomless and to require no treatment. Under these circumstances it is wise to request the patient to return for semiannual examinations. On the other hand, if such a displacement is of recent origin, one year or less, the uterus should be held in its normal position for several months with a pessary and not treated expectantly, because the supporting structures may still be capable of regaining their tonicity.

Palliative therapy resolves itself into the application of a pessary in cases of replaceable retrodisplacement, and the treatment of coexisting parametritis and adnexal disease when the uterus is thereby immobilized. The induction of local depletion and hyperemia by such means as strip gauze and glycerin vaginal packing, hot saline douches, sitz baths, diathermy and short wave therapy will ofttimes convert a fixed displacement into one that is replaceable. When the malposition is discovered early it can be corrected with an excellent prospect of a nonoperative cure; in other cases relief is experienced only so long as the pessary is worn. There are four types of pessary well adapted to the treatment of retroversion under slightly different conditions: the Hodge, the Albert Smith, the Thomas and the Findley, of which the Smith is the most popular. The purpose of a pessary is not to correct a displacement but to maintain proper uterine poise after the uterus has been replaced. Incidentally, it serves to demonstrate that permanent anteversion will relieve the symptoms. Certain prerequisites are essential: The bladder should be emptied by catheter, the mobile uterus must be replaced bimanually, there must be no associated prolapse or extensive cystocele, and before an appliance is selected for an individual patient the size and configuration of the vagina should be estimated. The length is determined by inserting the fingers high in the posterior fornix, just as though measuring the diagonal conjugate diameter of the pelvis. The approximate width is estimated by separating the finger tips at the midportion of the vagina. It is thus easy to select a pessary of the size and shape that the patient needs. Misused, misfitted and misapplied pessaries will cause distress and local soreness, whereas one that is fitted accurately can be worn with perfect comfort, if it is removed, cleaned and replaced every six weeks. Every curve in a pessary is designed for a definite reason, and once the principles of construction are understood there is no difficulty in making a selection for an individual patient.

The uterus having been replaced in its normal position, the only thing necessary to keep it there is some mechanical contrivance to hold the cervix back. If two fixed points, the pubic arch and the posterior vaginal fornix, are kept widely separated by a rigid bar or straight stick, the cervix can move up and down through a small arc but cannot come any nearer the vaginal orifice. If a straight stick were used, however, the posterior tip would push sharply into the fornix, so the end must be bent upward to conform to the outline of the fornix and put the uterosacral ligaments on the stretch. Provision having been made for the curve of the vaginal vault, it becomes necessary to make a shorter reverse curve in the anterior end, to allow for the upward pressure of the perineal musculature. This long upward curve permits the pessary to lie up out of the way in the narrow part of the pubic arch. Since the vagina is a wide canal, it is necessary to place another stick with identical curves parallel with the first and to connect the two anteriorly and posteriorly. The posterior bar is wider because the fornix is roomy, the anterior bar narrower so that it can lie well up behind the pubic arch. The little transverse notch and downward dip at the anterior end are to prevent undue pressure on the overlying urethra.

Laparotomy for the correction of displaced uterus is an elective and not an emergent procedure, and it should not be advised unless the hazards involved are minimal, all palliative measures have been exhausted and subse-

quent pelvic comfort can be anticipated. An operation which fails to afford symptomatic relief is a failure, irrespective of the anatomic result.

In a series of 3,400 consecutive office patients, a retrodisplacement was found 429 times, an incidence of about 12.5 per cent. Of these, forty-two patients failed to return for treatment and have been disregarded in this analysis; seventy-two of the remainder had congenital and 315 acquired retroversions or flexions.

TABLE 2.—*Retrodisplacements of the Uterus in a Series of 3,400 Consecutive Office Patients* *

	Number of Cases		Approximate Percentage of Cases
	Congenital	Acquired	
Developmental retroversions	72	..	19
Symptomless acquired malpositions	..	47	12
Relieved by treatment of complications	..	50	13
Relieved by pessary	..	76	20
"Uncomplicated" retrodisplacements; patient operated on after wearing a pessary	..	28	7
Primary corrective operation or operation after palliative measures failed	..	87	22
Hysterectomy for tumors (displacement of secondary importance)	..	27	7
	72	315	
Total	387		100

* Exclusive of forty-two who failed to subject themselves to treatment.

Treatment of the malposition itself was unnecessary in forty-seven cases. In the other 268, palliative measures sufficed to relieve symptoms in fifty; bimanual reposition and a pessary effected a cure in seventy-six; twenty-eight patients with "uncomplicated" displacements were operated on after wearing a pessary temporarily, and eighty-seven had a primary operation or were operated on after palliative measures failed to afford symptomatic relief. Hysterectomy for tumor was performed in twenty-seven cases, the uterine dislocation being of secondary importance (table 2).

In reviewing this series of cases, certain significant facts became apparent:

1. Several operations by other surgeons for the cure of developmental defects were followed by recurrence.

2. Many patients with congenital displacements were pregnant when first seen or became so after the application of negative galvanism to the uterus and the treatment of endocrine derangements. Endowment with a congenital malposition does not condemn a patient to sterility.

3. After delivery the uterus may involute in normal position, even though previously congenitally retrodisplaced.

4. Symptomless acquired retroversions were discovered in patients presenting themselves with conditions such as Bartholin cyst, pruritus vulvae, trichomonas infections, cervical polyp, sterility, urinary complaints, colitis and breast tumor. They were more common in postmenopausal women.

5. Successful palliative treatment embraced careful preliminary differential diagnosis as well as the correct therapy for hormonal imbalance, endocervicitis, parametritis and adnexal disease. In some instances a pessary was used after a fixed uterus became mobilized.

6. A high percentage of patients fitted with a pessary were impregnated while wearing the appliance or soon thereafter.

The multiplicity of operations devised for the surgical replacement of a retroverted or retroflexed uterus is not testimony of the uselessness of all of them, as has occasionally been intimated, but is rather evidence of appreciation on the part of discriminating gynecologists that no single technical procedure is universally applicable. Failures seldom represent lack of skill in execution; they more often result from inadequate preoperative differential diagnosis, on the one hand, and overenthusiasm in favor of a particular operation on the other. In a series of 2,550 personal consecutive pelvic operations, including ward service cases, I found that I had utilized some type of intraperitoneal uterine suspension in 286 (table 3).

In several instances the suspension was reinforced with a plication of the uterosacral ligaments, and all laparotomies were supplemented with whatever vaginal plastic repair was indicated.

The relatively small number of Baldy-Webster suspensions is an index of conservatism in operating for a replaceable retrodisplacement, since I am prejudiced in its favor wherever it can be judiciously selected. It can be done quickly, preserves normal uterine mobility, elevates prolapsed ovaries and in my experience has interfered less with subsequent pregnancy and parturition than any other corrective procedure. It is ideal for the patient who has worn a pessary with relief of symptoms, thus demonstrating to both patient and physician that the annoyances have been due to the uterine dislocation and nothing else and that maintaining the uterus in its normal position will effect a cure. Unfortunately its merits have often been responsible for its misapplication. It has been done when no operation was imperative, when the round ligaments were markedly attenuated or when adnexal disease required salpingo-oophorectomy. The intact utero-ovarian ligament, tube and ovary are the only sturdy structures capable of exerting counterpressure against the pull of the transplanted round ligament on the thin leaves of the broad ligament. It is apparent that if the utero-ovarian ligament is cut, as it must be when salpingo-oophorectomy is done, the broad ligament will soon yield to tension and recurrence is inevitable. Other causes of failure are using it for the support of a heavy subinvoluted corpus without plicating the uterosacral ligaments at the same time, and suturing the round ligaments too low on the posterior surface of the corpus, so that they serve as a fulcrum instead of as a support.

TABLE 3.—*Surgical Procedures for Retrodisplacement of the Uterus in 2,550 Consecutive Pelvic Operations* *

Type of Procedure	Number of Cases
Baldy-Webster suspension	80
Crossen-Gilliam	160
Ventrifixation	28
Mann plication of round ligaments	12
Olshausen suspension	5
Coffey plication of round and broad ligaments	1
Total	286

* Exclusive of operations for displacements associated with tumors.

The large number of cases in which Crossen's modification of the Gilliam operation was done indicates the high incidence of concomitant adnexal disease in the patients subjected to surgical intervention for retrodisplacements. This operation also causes little trouble in event of subsequent gestation and delivery. Some

patients complain of soreness in the region of the round ligament attachment during the early months of pregnancy, but this is transitory and of little consequence. In only one of my cases has the operation been responsible for dystocia during labor, and intestinal obstruction has not followed in any case, so far as I know. The Crossen-Gilliam operation is not contraindicated by salpingo-oophorectomy, but the postoperative anteroposterior excursion of the corpus is somewhat limited as the bladder and rectum empty and fill.

A ventrifixation of the uterus was performed twenty-eight times in women past the menopause when the round ligaments were so short and thick that they could not be conveniently plicated, when the rapid removal of adnexal masses after extensive vaginal work was so easy that hysterectomy did not seem warranted, or when advantageously combined with a Crossen-Gilliam suspension in cases in which the uterus was prolapsed to the first degree. This group includes a few ventrosuspensions, attempted before I learned that the intended suspension usually terminates in a fixation, or the artificially created false ligament so stretches that the displacement eventually recurs.

Mann's plication of the round ligaments is indicated when the uterus is small and not to be sacrificed, both tubes have been removed at a previous operation and the round ligaments are unusually long but not much thinned out. Under these conditions it has proved entirely satisfactory.

Olshausen's suspension tends to immobilize the uterine fundus and thus interfere with proper bladder expansion. It has many strong advocates, but I have utilized it only five times, when speed was important after other prolonged operative procedures.

Coffey's plication of the round and broad ligaments is especially useful when the tubes have been extirpated at a previous operation and the round ligaments are so attenuated that they are almost lost in the reduplicated folds of the broad ligaments, but such cases are rarely seen.

SUMMARY AND CONCLUSIONS

Retrodisplacements of the uterus per se do not cause symptoms.

It is important to ascertain whether a malposition is congenital or acquired, whether the uterus is replaceable or immobilized and whether there is coexisting pelvic pathologic change.

The concealed complication in cases of replaceable displacement causing symptoms is passive congestion.

The true cause of many symptoms credited to a retrodisplacement will be found elsewhere. Careful differential diagnosis is of paramount importance.

A retrodisplacement may be treated prophylactically, expectantly, palliatively or surgically.

Pessaries are used to maintain normal uterine poise and position, not to correct a displacement. When fitted accurately they are worn with perfect comfort.

In a series of 3,400 consecutive office patients, a retrodisplacement was found 429 times, an incidence of 12.5 per cent; 142 of these were subjected to operation.

In a series of 2,550 consecutive personal operations, some form of intraperitoneal uterine suspension was done 286 times.

No single surgical procedure is universally applicable. An operation which fails to afford symptomatic relief is a failure.

580 Park Avenue.

ABSTRACT OF DISCUSSION

DR. BERTHA VAN HOOSEN, Chicago: Dr. Dannreuther's treatment with pessaries I endorse. He makes the statement that congenital retroversions of the uterus are symptomless and therefore we shouldn't think of treating a symptomless condition. I should like to ask Dr. Dannreuther what he considers the cause of a congenital retroversion of the uterus. It seems to me that if the undescended testicle deserves assiduous treatment we might put a little less assiduous but some more treatment on the symptomless congenital retroversion. I didn't gather whether Dr. Dannreuther made an age limit to the surgical treatment for retroversion. I make a deadline. If a patient is over 40 I feel that she must have had the retroversion for a long time and there is apt to be accompanying fibrosis or seedling fibroids, and as the uterus is an organ that is not very necessary after 40 I invariably do a simple supravaginal hysterectomy. I was disappointed that Dr. Dannreuther never mentioned the Alexander operation, which is the pioneer. The Alexander operation has the advantage that it uses the attenuated distal portion of the round ligament by which to suspend the uterus, and I draw that round ligament up so tight that it really suspends the uterus. I wish the ligaments that support the uterus, the cardinal ligaments and the uterosacral, to have absolutely nothing dragging on them so that they will recover their tone at the end of from three to six months. Of course, during this three to six months the uterus is pulling on those adhesions that have been formed around the round ligaments, and they gradually give way and at the end of six months the uterus will be in a normal condition with all its mobility. I feel that mobility is the first requisite, the thing that we should try hardest to get, and that position of the uterus is secondary.

DR. R. S. CRON, Milwaukee: Dr. Dannreuther has handled the problem of retrodisplacements in a masterful fashion. Two points that he has mentioned should be emphasized. The first is that the postpartum examinations, especially when retrodisplacement is suspected, should be done at the end of the third or the fourth week and again repeated at the sixth or the eighth week. A tipped uterus, even if congenital, corrected at this time and held in place with a properly fitting support, may be permanently corrected. Second, the pessary should be used more frequently, especially for a therapeutic test in uncomplicated retroversion. There are two statements with which I wish to take issue. The first is the routine packing for forty-eight hours of all postabortion uteri with iodoform gauze. A few years ago I reviewed more than 1,000 cases of abortion treated in various ways and found that those treated most conservatively and with the least trauma experienced the most satisfactory convalescence. Consequently, I rarely pack. A retroversion suspected or found at this time is immediately corrected with a pessary. Second, the choice of operation. A brief study of the last 185 operations performed for retrodisplacement of the uterus also showed a multiplicity of operations having been used. It was found necessary or deemed advisable to perform a hysterectomy in slightly less than one fourth of them. The Baldy-Webster technic was used nine times. In spite of the fact that this is the operation advocated by many of America's most prominent gynecologists, I am prejudiced against it. I know of at least six patients who have developed intestinal obstruction following the operation. In the hands of the average operator, at least four different openings may be left into which a loop of intestine may become strangulated. Recurrences, especially retrocession, are not uncommon. A technic described many years ago by Reuben Peterson and similar to the Mayo operation has in my hands proved to be most satisfactory. Each round ligament is drawn through the inguinal ring and anchored to the posterior surface of the anterior sheath of the rectus muscle. This operation was used 120 times, or in about 70 per cent of the cases. In thirty-eight instances it was combined with the approximation of the sacro-uterine ligaments. There was one recurrence, but no other serious complications were encountered. Finally, it has been noted that Dr. Dannreuther has made no mention of the relation of endometriosis to chronic retroversion. I should like to know whether he considers the possibility of regurgitation of the menstrual endometrium through the tubes in congenital or acquired retrodisplacement an indication for its correction.

DR. LOUIS E. PHANEUF, Boston: I appreciate Dr. Dannreuther's lucid presentation of this important subject of retropositions of the uterus. I subscribe to the fact that a retroversion or a retrodisplacement per se seldom causes symptoms but that it is the concomitant pathologic condition which is responsible for the symptoms. Obviously a congenital displacement without symptoms requires no treatment. The frequent association of hypoplasia, dysmenorrhea and sterility with that type of uterus, however, needs our attention. I have found the atrophied uterus after the menopause in retroposition so frequently that in my mind the retroposed atrophic uterus is a fairly normal condition. One of the greatest uses of the pessary which I have found has been in the puerperal uterus which has remained large, with lax ligaments, which can be replaced manually very simply, and which a pessary will hold in position. The wearing of a pessary for a period of six months will frequently allow the ligaments to take up their tonus and thereby correct the position. The wearing of a pessary in a replaceable uterus to determine whether or not the symptoms are caused by the retroversion in my mind is an excellent procedure. In connection with suspension operations, there are three factors which govern the proper surgical replacement of the retroposed uterus, as I see it. The first is to bring the cervix back at right angles to the vagina, the second to bring the uterus forward, and the third to obliterate the space on the sides in order to avoid, so far as it is possible to do so, intestinal obstruction. This is accomplished by shortening the uterosacral ligaments by doing a round ligament suspension in such a way that the space on the sides is obliterated. It is my custom to do some sort of suspension after having operated for adnexal abnormality, with the end in view of preventing the formation of an adherent retroversion.

DR. O. S. KREBS, St. Louis: I merely want to mention a phase of prophylaxis of retrodisplacement of the uterus. It seems that at the end of the second week after delivery the rule is for the uterus to be forward, that the displacement occurs between that time and the fourth week, when from 20 to 41 per cent are found displaced posteriorly. Williams says one out of four or five, and Lynch 41 per cent. In October 1937 I began introducing a collapsible pessary, the Finley pessary of the Smith-Hodge type, in treating all private obstetric patients delivered by Dr. Royston and myself, just before they left the hospital. It has also been the custom for these patients to omit taking any douches for two weeks after getting home, and to insert into the vagina every other night a large capsule filled with 80 per cent beta lactose and 20 per cent boric acid, as suggested by Roblee. In the small series under consideration the results are not entirely tabulated, but the frequency of retrodisplacement after the puerperium is over is 18 per cent in primiparas and multiparas combined. There is a high frequency of congenital displacements in our cases, about 16 per cent in the aforementioned group, which were considered in the results, however, and it is noteworthy that among all the primiparas only those that we felt had congenital displacements ended with retrodisplacements at the end of the puerperium. Four of the patients with congenital displacements during early pregnancy had anteflexed uteri when discharged from our care. Not considering the lessened incidence of displacement following delivery with the foregoing regimen, which may be worth while, the improved involution in practically all cases regardless of the final position of the uterus was very striking. No douches were given during this postpartal period, so the effect of heat can be dismissed. Probably the greatest factor in subinvolution is a local one and that is an abnormality of circulation which accompanies the displacement, and the results are obtained by the uterus being maintained in its normal position when involution is active. In addition to better involution, the cervix recovered from the effects of labor at an earlier time and more completely. Since this series of cases has been under observation it has not been found necessary to cauterize the puerperal cervix for erosion or endotrachelitis alone.

DR. A. C. HIRSHFIELD, Oklahoma City: Dr. Dannreuther has rightly emphasized the lack of symptoms in the uncomplicated case and has reemphasized the fact that surgery is ordinarily not indicated in these cases, but men practicing in large hospitals and medical centers would be surprised if they realized the percentage of routine surgery, in the hospitals in the hinterlands, which consists of operations on tubes and retrodisplacements. Since I recognized the fact that surgery is not indicated in the ordinary case of salpingitis and retrodisplacement, I have not appeared in the operating room as often as I used to, and I have no enthusiasm for surgical intervention in these cases. To get back to the legal aspect of this matter, I wonder whether physicians realize how many large damage suit judgments are obtained because women who have been in minor accidents, particularly in taxicabs, show up afterward with retrodisplacement. In Oklahoma City the taxicabs compete with the street cars, and one can ride any reasonable distance for 10 or 15 cents. There are many taxicab accidents, and for years the damage suit lawyers managed to find physicians who found retrodisplacements in these women and who qualified as experts and testified more or less convincingly to the juries that these retrodisplacements were caused by taxicab accidents. The taxicab attorneys employed one or two of us who had a more or less scientific view to combat this wave of damage suit cases in favor of the retroverted uterus. By means of charts and models and impromptu lectures we went before these juries and demonstrated that these conditions were either congenital or caused by childbirth or other more or less natural feminine causes and were not caused by ordinary taxicab accidents.

DR. W. H. VOGT, St. Louis: I was glad to see that Dr. Dannreuther is still so old fashioned as to use the pessary. There is a definite place for the pessary when used properly with the proper indications and the proper type of pessary. There are contraindications to the use of the pessary that everybody must recognize, and Dr. Dannreuther, I think, has brought out some of those. In inflammatory conditions of the pelvis they should not be used; if the uterus cannot be elevated the pessary should not be used, because it will do more harm than good. I am not one of those who believe that the retroversion or retrodisplacement of the uterus which gives no symptoms should not be treated. There are certain types of retrodisplacement, that type of congenital retrodisplacement with a general atrophy of the pelvic organs and general ill development of the body, that do not need any treatment; treatment there is directed in a general way and not locally. Likewise, those cases of retrodisplacement which occur in the menopause I don't believe need any treatment. In the atrophic uterus of the menopause no treatment is needed, but in all other cases of retrodisplacement, even though there are no symptoms, I think treatment is indicated, because I feel convinced that the uterus acts as a wedge and that the retrodisplacement is simply a forerunner of a future prolapsus.

DR. WALTER T. DANNREUTHER, New York: In reply to Dr. Van Hoosen's inquiry regarding my opinion concerning the embryologic factors responsible for a congenital defect, I confess that I don't know how they operate. Even if we did know, it seems unlikely that such knowledge would be of practical value. To institute any effective therapeutic measures it would be necessary to make an exact diagnosis, which would involve the routine examination of all female infants and children. The Alexander-Adams operation of course was popular forty years ago, but modern abdominal surgery no longer carries with it the hazards of forty years ago. One does not hesitate to open the peritoneal cavity today, whereas forty years ago there were frequent consultations before such a serious step was undertaken. The Alexander-Adams operation requires two incisions instead of one, affords no opportunity to make an intraperitoneal exploration, is sometimes attended by technical difficulties when the round ligaments are thin and hard to find in the inguinal canal, and eventuates in a certain percentage of unsatisfactory results. Dr. Cron called attention to a typographic error in my paper which escaped my notice, namely, the recommendation that the uterus be packed after abortion; the qualifying word "therapeutic" should have been included. No instances of intestinal obstruction following Baldy-Webster operations have come to my attention, although my patients, both clinic and private, have an excellent follow-up. On the other hand it is evident that, if sutures are not placed properly in doing this operation, intestinal

obstruction might easily occur. I prefer Pagenstecher linen to catgut for stitching the round ligaments to the uterine corpus. No reference was made to endometriosis because it does not seem justifiable to put the tag of retrodisplacement on such a condition. All the anatomic relationships may be so distorted by endometriosis, just as they are in cases of pelvic tuberculosis, that I think that such cases were properly omitted from my statistical data. Under these circumstances a retrodisplacement is entirely secondary to another primary and more important pathologic process. The medicolegal aspects of uterine displacements are interesting, but the limitations of this paper precluded a reference to them.

TREATMENT OF PNEUMOCOCCIC MENINGITIS WITH SULFAPYRIDINE

AND THE SODIUM SALT OF SULFAPYRIDINE

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Since the demonstration by Whitby[1] of the effectiveness of sulfapyridine against pneumococcic infections in mice, many clinical reports have shown that the drug is of definite value in the treatment of pneumonia in man. It appears that the mortality rate from pneumonia in both children and adults is reduced when sulfapyridine is used.[2] Reports have appeared which indicate that the drug may be of value also in pneumococcic meningitis.[3] However, the number of cases thus far described is so small that one cannot be certain that the prognosis in this disease will be, in general, altered by the use of sulfapyridine. There are published in the literature the records of only fourteen patients with pneumococcic meningitis who were treated with sulfapyridine alone. Eight of the fourteen recovered.

The present communication deals with the use of sulfapyridine and its sodium salt[4] in the treatment of seventeen patients with pneumococcic meningitis admitted to the Sydenham Hospital between October 1938 and May 1939. Eight of these seventeen (47 per cent) recovered completely. Antipneumococcic serum was not employed in treating any of these patients. While it is difficult to attempt to estimate the value of any form of therapy in so small a series of patients, it should be pointed out that when no specific therapy is used the mortality rate in pneumococcic meningitis is so nearly 100 per cent that the survival of eight of seventeen patients seems striking enough to warrant detailed consideration.

This experience with sulfapyridine is in sharp contrast with our results obtained in treating pneumococcic meningitis during the eight years previous to the introduction of this drug. Between 1930 and 1936 no specific therapy was employed, and all of the twenty-nine patients treated during this time died. From December 1936 to October 1938, seventeen patients were treated with sulfanilamide but only one recovered. In all, forty-six patients were treated between January 1930 and October 1938 with only one recovery.

Four of the seventeen patients treated with sulfapyridine or its sodium salt were infants under 1 year of age. Five patients were between the ages of 6 and 12 years, while eight were adults varying in age from 28 to 54 years. Six were white and eleven were Negroes.

Pneumococci were cultured from the spinal fluid in each case. In every case these pneumococci were identified by cultural characteristics, by mouse inoculation and by the Neufeld-Sabin reaction with type-specific serum. The following types were isolated: I, III (twice), V, VI (twice), IX, XII (twice), XIV, XIX, XXII, XXIII, XXV, XXVII, XXIX and XXXI.

With the exception of the four patients who died within twenty-four hours after admission, the finding of pneumococci was confirmed by one or more additional spinal fluid cultures. From the blood of nine patients, pneumococci of the same type as that found in the spinal fluid were isolated.

The meningitis was of otitic origin in eight cases. In three instances the meningitis developed during the course of pneumonia and in one case it followed an infection of the eye. No source of the infection could be discovered in the remaining five cases.

METHOD OF ADMINISTRATION OF SULFAPYRIDINE AND SODIUM SULFAPYRIDINE

The first six patients were given sulfapyridine by mouth, while the remaining eleven received in addition the sodium salt of sulfapyridine intravenously. The amount of drug given by mouth varied between 1 and 12 Gm. in twenty-four hours, depending on the patient's age, on his condition and on the concentration of the drug in the blood and spinal fluid. In very young infants from 1 to 3 Gm. daily was given as compared with from 6 to 12 Gm. in older children and adults. In each case the total twenty-four hour dose was given immediately when the diagnosis of pneumococcic meningitis was made; one fourth of this amount was then

From Sydenham Hospital, Baltimore City Health Department.

The sulfapyridine and its sodium salt were furnished by Merck & Co., Inc., Rahway, N. J., under the names "Dagenan" and "Dagenan Sodium."
Dr. E. K. Marshall Jr. gave valuable advice on the dosage and method of administration of the sodium salt of sulfapyridine and supplied us with the first samples of the drug. Dr. Perrin H. Long showed constant interest in the progress of this study and made many helpful suggestions.

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4. Marshall, E. K., Jr.; Bratton, A. C., and Litchfield, J. T., Jr.: The Toxicity and Absorption of 2-Sulfanilamidopyridine and Its Soluble Sodium Salt, Science **88**: 597 (Dec. 23) 1938.

given every six hours. The full dose of sulfapyridine was continued by mouth until the patient seemed entirely well clinically and until several successive cultures of spinal fluid were sterile; the dose was never reduced before the temperature had been normal for one week. After this time the dosage was halved for several days and then the drug was discontinued entirely. On one occasion it was resumed because the occurrence of a relapse was suspected.

On admission many of the patients in this series were comatose or delirious and required the administration of the drug by nasal tube. This was continued until the patient was able to swallow.

In the treatment of the last eleven patients in this series the sodium salt of sulfapyridine was employed in addition to the oral administration of sulfapyridine. As Marshall [4] has shown, the sodium salt, unlike sulfapyridine itself, is freely soluble. It is most conveniently used in distilled water in a 5 per cent solution, which is approximately isotonic. It should be emphasized that such a solution is extremely alkaline (p_H almost 11) and cannot be given intrathecally or subcutaneously but only intravenously.[5] The sodium salt proved to be of great value. When it first became available it was given only to those patients who were unconscious or comatose and unable to swallow sulfapyridine. Later we employed it also in treating those patients in whom the concentration of the sulfapyridine in the blood and spinal fluid remained low during the oral administration of the drug. In such cases one or two daily intravenous injections of the sodium salt served to bring the concentration of sulfapyridine in the blood and spinal fluid to high levels. The intravenous administration of the sodium sulfapyridine proved to be of great value also for those patients who persistently vomited sulfapyridine given by mouth. At the present time we believe that the oral administration of sulfapyridine should be combined with a regular course of the sodium salt given intravenously. The plan of treatment which we now recommend and which we have employed in treating the last four patients, all of whom recovered, is as follows:

The oral administration of the drug is instituted on admission and continued in the manner already described. In addition, intravenous therapy with a 5 per cent solution of sodium sulfapyridine in distilled water is begun. An initial dose of 0.1 Gm. per kilogram of body weight is injected. Following this, 0.03 Gm. of the sodium salt per kilogram of body weight is given intravenously every six hours until the patient shows definite clinical signs of improvement and until two successive lumbar punctures are sterile. After this, the sodium sulfapyridine is given only twice a day for several days longer, and then it is discontinued. Intravenous therapy should be resumed at the first indication that a relapse has occurred.

None of the patients treated with sulfapyridine received antipneumococcus serum. Forced spinal drainage was not employed and lumbar punctures were done only for diagnostic purposes and occasionally to relieve pressure symptoms. Supportive measures, such as the administration of intravenous fluids and frequent blood transfusions, were given as necessary. Myringotomy was performed in six cases but it was thought advisable in only two cases to attempt to eradicate the original focus of infection by extensive surgical methods. A mastoidectomy was performed on one of these patients (patient 3), who recovered, but it was very doubtful that the operation exerted any definite effect on the course of the meningitis. In the other case the meningitis apparently followed pneumococcic panophthalmitis of one eye. Enucleation was not followed by any improvement in the patient's condition, and he eventually died.

5. Marshall, E. K., Jr., and Long, P. H.: The Intravenous Use of Sodium Sulfapyridine, J. A. M. A. **112**: 1671 (April 29) 1939.

CONCENTRATION OF SULFAPYRIDINE IN BLOOD AND SPINAL FLUID

With a modification of Marshall's [6] method for sulfanilamide, the concentration of free sulfapyridine in the blood and spinal fluid was determined on a number of occasions in twelve cases. It was found that when the drug was given orally there was great variation in the concentration of sulfapyridine. There was no good correlation between the dose of the drug given by mouth and the level of sulfapyridine in the blood and spinal fluid. The concentration of the drug in the spinal fluid in those patients who received the drug by mouth varied only from 1.1 to 11.4 mg. per hundred cubic centimeters. It was generally higher in those patients who also received sodium sulfapyridine intravenously. In one such case the concentration in the spinal fluid reached 29 mg. per hundred cubic centimeters. The concentration of sulfapyridine in the blood was usually from 30 to 50 per cent higher than it was in the spinal fluid.

TABLE 1.—*Treatment of Pneumococcic Meningitis at Sydenham Hospital, 1930-1939*

	All Cases			Adequately Treated Cases Excluding 24 Hour Deaths		
		Recovered			Recovered	
Treatment	Number Treated	Number	Per Cent	Number Treated	Number	Per Cent
Before use of sulfanilamide and sulfapyridine (no antipneumococcic serum).....	29	0	0	14	0	0
Sulfanilamide.....	17	1	6	12	1	8
Sulfapyridine.....	17	8	47	13	8	61

TOXIC EFFECTS OF SULFAPYRIDINE

During the course of treatment with the large doses of sulfapyridine and its sodium salt which were employed, a number of toxic effects of the drug were noted. The drug produced nausea and vomiting in more than half the patients, but these symptoms were severe in only one case. Cyanosis of mild degree was seen in four of the patients; it was accompanied by no untoward effects. The drug did not produce anemia of appreciable degree in any of the cases. In one adult (D. C.) mild leukopenia was noted, and in one child (C. M.) severe granulocytopenia developed. Owing to an oversight, this child continued to receive the drug ten days after it was believed to have been withdrawn. The white blood count dropped to 4,000 cells, of which 96 per cent were lymphocytes. The granulocytopenia was accompanied by fever of 104 F. and by membranous pharyngitis. The drug was discontinued and supportive measures were instituted. The patient improved almost at once and the temperature became normal in six days. The white blood cell count rose gradually until it reached 9,500 with 70 per cent polymorphonuclear leukocytes ten days after the discovery of the granulocytopenia.

6. Marshall, E. K., Jr., and Litchfield, J. T., Jr.: The Determination of Sulfanilamide, Science **88**: 85 (July 22) 1938.

In three of the cases the administration of sulfapyridine caused gross hematuria. In the first case (case 2), the hematuria appeared on the fifth day after the institution of sulfapyridine therapy. The hematuria was not accompanied by oliguria, hypertension or an increase in the nonprotein nitrogen of the blood. Within four days after withdrawal of the drug, the urine was normal microscopically; the number of formed elements as measured by the Addis count was within normal limits, and phenolsulfonphthalein tests were normal. Apparently no permanent damage to the kidney resulted from the hematuria.

In the second case (case 9) hematuria developed on the fourth day of treatment with sulfapyridine and its sodium salt. In this case also the hematuria was not accompanied by changes in blood chemistry or by elevation in blood pressure, and there was no oliguria. Fluids were forced but, since the spinal fluid cultures were still positive, the intravenous administration of sodium sulfapyridine was continued. The spinal fluid became sterile two days after the onset of hematuria, and when the sodium sulfapyridine was withdrawn four days later both the urine and the spinal fluid were normal. About two weeks later the patient showed clinical evidence of a relapse, and is was suspected that she was suffering from a brain abscess. Sodium sulfapyridine therapy was begun again and was continued for the next four days. During this time gross hematuria reappeared and persisted until two days after the drug was again discontinued.

In a third case (case 17) hematuria developed fourteen hours before death. Autopsy showed very clearly that death was not caused by the hematuria but was due to very extensive meningitis which had apparently not been affected by sulfapyridine. Gross examination showed that the pyramids, calices, pelves and ureters of both kidneys, as well as the bladder, contained gravel-like calculi. These calculi were very rough, with many pointed spicules. Dr. A. Calvin Bratton [7] in Dr. E. K. Marshall Jr.'s laboratory showed that these small calculi were made up almost entirely (85 per cent) of the acetyl derivative of sulfapyridine. Microscopic sections showed that the calculi apparently had eroded the epithelial cells lining the pelves, ureters and bladder and had caused hematuria by injury to the underlying capillaries. No crystals of sulfapyridine or calculi were found in the glomeruli or tubules and no evidence of injury to these structures was found.

It appears, therefore, that the hematuria caused by sulfapyridine is due to mechanical injury to the urinary tract. It seems reasonable to suppose that the hema-

TABLE 2.—*Results in Seventeen Cases of Pneumococcic Meningitis Treated with Sulfapyridine and Sodium Sulfapyridine*

Case No.	Name, Age, Color, Sex	Clinical Condition on Admission	Original Focus of Infection	Blood Culture, Type Pneumococcus	Type Pneumococcus in Spinal Fluid	Spinal Fluid Sterile (Days After Treatment Begun)	Duration of Fever After Sulfapyridine Begun, Days	Treatment	Concentration of Free Sulfapyridine, Mg. per 100 Cc.		Toxic Effects of Drug	Results
									Blood	Spinal Fluid		
1	G. J. 34 yrs. Negro ♂	Critically ill; comatose; temp. 104.4 F.	Pneumonia	25	25	17	5	Sulfapyridine by mouth only	1.7-4.8	1.1-4.0	None	Recovered
2	A. P. 7 yrs. White ♂	Moderately ill; temp. 103 F.	Otitis media	Negative	1	2	3	Sulfapyridine by mouth only	Not done	Not done	Hematuria	Recovered
3	C. M. 11 yrs. Negro ♀	Critically ill; comatose; temp. 105 F.	Otitis media	Negative	5	1	3	Sulfapyridine by mouth and sodium sulfapyridine intravenously; mastoidectomy	Not done	Not done	Agranulocytopenia	Recovered
4	C. B. 32 yrs. Negro ♂	Critically ill; comatose; temp. 103 F.	Not known	Negative	9	2	3	Sulfapyridine by mouth and sodium sulfapyridine intravenously	3.2-8.0	2.7-4.0	None	Recovered
5	D. C. 49 yrs. Negro ♂	Critically ill; delirious; temp. 103.8 F.	Not known	23	23	10	4	Sulfapyridine by mouth and sodium sulfapyridine intravenously	1.8-25.0	1.3-13.3	Moderate leukopenia	Recovered
6	D. G. 35 yrs. Negro ♂	Moderately ill; temp. 100 F.	Not known	12	12	5	3	Sulfapyridine by mouth and sodium sulfapyridine intravenously	4.1-14.0	4.5-7.5	None	Recovered
7	A. T. 45 yrs. White ♀	Critically ill; delirious; temp. 102 F.	Otitis media	Negative	3	11	5	Sulfapyridine by mouth and sodium sulfapyridine intravenously	11.0-28.5	13.0-20.0	None	Recovered
8	G. M. 11 yrs. White ♂	Critically ill; profound coma; temp. 101 F.	Otitis media	3	3	3	2	Sulfapyridine by mouth and sodium sulfapyridine intravenously	11.1-15.3	5.8-15.0	None	Recovered
9	B. S. 6 yrs. White ♀	Moderately ill; temp. 103 F.	Otitis media	Negative	27	3	7	Sulfapyridine by mouth and sodium sulfapyridine intravenously	Trace-8.7	Trace-5.2	Severe vomiting, hematuria	Died (cerebellar abscess)
10	A. E. 28 yrs. Negro ♂	Moribund; temp. 105 F.	Not known	12	12	Not sterile	..	Sulfapyridine by mouth only	Not done	Not done	None	Died in less than 24 hours
11	J. W. 9 mos. Negro ♂	Moribund; temp. 100.2 F.	Otitis media	6	6	Not sterile	..	Sulfapyridine by mouth and sodium sulfapyridine intravenously	Not done	Not done	None	Died in less than 24 hours
12	C. N. 5 mos. White ♂	Moribund; temp. 101.4 F.	Otitis media	29	29	Not sterile	..	Sulfapyridine by mouth only	10.4	7.5	None	Died in less than 24 hours
13	D. N. 1 yr. Negro ♂	Moribund; temp. 103 F.	Not known	6	6	Not sterile	..	Sulfapyridine by mouth and sodium sulfapyridine intravenously	16.0-30.3	Not done	None	Died in less than 24 hours
14	D. W. 10 mos. Negro ♂	Critically ill; temp. 102.4 F.	Pneumonia	14	14	Not sterile	..	Sulfapyridine by mouth only	8.2	6.4-11.4	None	Died
15	C. J. 31 yrs. Negro ♂	Critically ill; comatose; temp. 105 F.	Panophthalmitis	Negative	22	Not sterile	..	Sulfapyridine by mouth only; enucleation of right eye	4.7-10.5	1.9-7.5	None	Died
16	C. W. 12 yrs. White ♂	Critically ill; delirious; temp. 102.2 F.	Otitis media	Negative	19	Not sterile	..	Sulfapyridine by mouth and sodium sulfapyridine intravenously	Not done	12.0-29.0	None	Died
17	W. H. 54 yrs. Negro ♂	Critically ill; comatose; temp. 102.2 F.	Pneumonia	Negative	31	Not sterile	..	Sulfapyridine by mouth and sodium sulfapyridine intravenously	Not done	Not done	Hematuria	Died

7. Personal communication to the authors.

turia will not be accompanied by serious or permanent interference with renal function, unless the precipitation of the acetyl sulfapyridine is so extensive as to produce blockage of the tubules or ureters.

Dr. E. K. Marshall Jr.[7] offers the following explanation for the formation of calculi of acetyl sulfapyridine in the urinary tract: When sulfapyridine is ingested, part of it is acetylated and is excreted in the urine with some free sulfapyridine. The amount of sulfapyridine which is acetylated varies greatly with the individual patient. Acetyl sulfapyridine, which is not very soluble at best, is even less so in acid mediums. It is probable that even when the concentration of this substance is high in the blood it remains in solution in the glomerular filtrate. However, as the urine becomes more concentrated and more acid as it passes down the tubular system, precipitation of the crystalline acetyl sulfapyridine may occur. These sharp-edged crystals and small calculi formed around them probably cause hematuria by mechanical injury. Dr. Marshall suggests that with a given dose of sulfapyridine the danger of the occurrence of hematuria might be lessened by the administration of alkali and by supplying an adequate fluid intake.

RESULTS FOLLOWING TREATMENT

Table 2 summarizes our experience with the use of sulfapyridine and its sodium salt in pneumococcic meningitis. As already stated, eight of the seventeen patients treated (47 per cent) recovered. Up to the present time no sequelae of any kind have been noted and these patients appear to be entirely well. This result is particularly striking when the condition of the patients on admission to the hospital is considered. Four were moribund and died in less than twenty-four hours; ten were critically ill and delirious or comatose, while three were only moderately ill. Of the thirteen patients who survived more than twenty-four hours, only five failed to recover. Among the seventeen patients there were four under 12 months of age; all these infants died in less than twenty-four hours after the beginning of treatment with sulfapyridine. Three of the five children between the ages of 6 and 12 years recovered, as did five of the eight adults in the group.

In those patients who recovered, clinical improvement was noted very soon after treatment with sulfapyridine was begun. Usually the first evidence of beneficial action of the drug was improvement in the patient's mental status. On a number of occasions the patient who had been stuporous or irrational became oriented and alert within twenty-four hours after the beginning of treatment. Among the patients who recovered, the temperature reached normal within four days and the spinal fluid cultures became sterile within five days, with the exception of one (patient 1), whose spinal fluid cultures showed pneumococci for seventeen days. In two cases (5 and 7) a relapse occurred with the transient appearance of pneumococci in the spinal fluid. A very dramatic example of the prompt effect of the drug is shown in the accompanying chart.

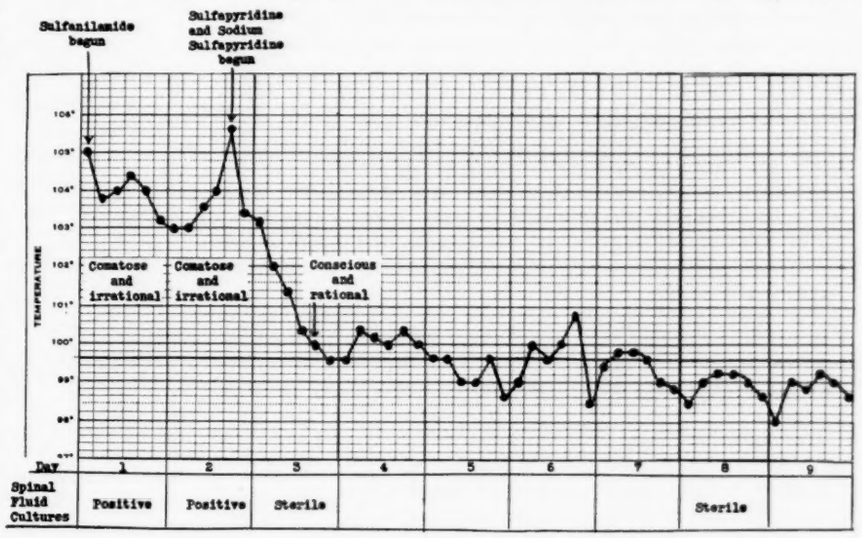
Pneumococci were recovered from the blood cultures on admission of four of the patients who recovered. The blood cultures in these cases became sterile within a few days after the beginning of treatment.

Three of the patients who recovered showed paralysis of the facial nerve of the peripheral type during the course of their illness. During convalescence, however, the paralysis gradually became less marked and all three patients eventually regained complete use of their facial muscles.

In one instance death was caused by a cerebellar abscess. At autopsy the meninges were found to be perfectly normal. Apparently treatment with the sulfapyridine had brought about complete resolution of the infiltration and infection in the meninges but had not caused healing of the brain abscess.

COMMENT

It seems evident that the mortality rate from pneumococcic meningitis can be reduced by the use of sulfapyridine and its sodium salt. The outlook for the average patient with this disease has been improved, perhaps by 50 per cent. Our experience indicates that the drug is effective against all types of pneumococci.



Course of meningitis due to type V pneumococci in a Negro girl aged 11 years (case 3). Dramatic and rapid improvement after sulfapyridine therapy was started.

One of the great handicaps encountered in treating meningitis with sulfapyridine is the irregularity of the absorption of the drug, which probably accounts for the great variation in its concentration in the blood and spinal fluid. This drawback may be eliminated by the use of the sodium salt of sulfapyridine. By administering the sodium salt at regular intervals, as we have done in treating our last four patients, all of whom recovered, the concentration of sulfapyridine in the spinal fluid may be maintained at any desired level. We believe that this is the important function of the sodium salt, which should be used in amounts sufficient to maintain the spinal fluid concentration of sulfapyridine between 10 and 15 mg. per hundred cubic centimeters.

That the use of sulfapyridine may be accompanied by serious toxic effects is, of course, well known. However, in dealing with meningitis, the most dangerous of all pneumococcic infections, it may be necessary to continue treatment with the drug despite these untoward effects. For example, we believe that the drug should be given even in the face of hematuria, since the patient's life depends on the action of the drug.

There remains the possibility that better results might be obtained by combining sulfapyridine with antipneumococcus serum. On this point we have no data to offer.

REPORT OF CASES [8]

CASE 2.—A. P., a white boy aged 7 years, was admitted to the hospital Jan. 16, 1939, and discharged well February 4.

Five days before admission, the child complained of pain in the right ear. The next day he became drowsy and remained so until admission to the hospital. On the night before entry he became "dizzy" and complained of a great deal of pain in the back of his neck when he attempted to raise his head.

On arrival at the hospital the patient, who was well developed and well nourished, did not appear to be critically ill. His neck was slightly stiff and Kernig's sign was present. On otoscopic examination the left drum was seen to be bulging, but no mastoid tenderness or edema was present. Physical examination otherwise was entirely negative.

On admission the spinal fluid showed 2,000 cells per cubic millimeter but no organisms were seen on smear. Sulfanilamide therapy was begun at once. Myringotomy of the left ear drum was done with the release of a large amount of thick pus. The next day, type I pneumococci were recovered from cultures of the spinal fluid and of the pus from the ear and from the throat, and sulfapyridine therapy was begun. Six Gm. a day was given for four days. On the fourth day of sulfapyridine treatment, hematuria developed with passage of a few blood clots. Sulfapyridine was immediately discontinued and within the next five days the urine became clear and negative microscopically. All kidney function tests were normal one week after the hematuria had appeared.

The spinal fluid cultures were negative at the time the sulfapyridine was discontinued, and the patient did not require any further medication.

The temperature on admission was 103 F. and returned to normal on the second day. On the fourth day the temperature rose to 102 F. At this time the left ear drum was reopened and pus was obtained, following which the temperature returned to normal.

On admission the patient was found to be strongly sensitive to a test dose of rabbit and horse serum, and consequently antipneumococcus serum could not be used.

On discharge the left ear was completely healed. The urine was normal and no residual changes were present.

LABORATORY DATA

Spinal fluid cultures were positive for pneumococci (type I) January 16 and 17 but sterile thereafter.

Culture of pus taken from the left ear was positive for pneumococci (type I) January 16.

Culture of material taken from the throat was positive for pneumococci (type I) January 17.

The urine was normal, except for gross hematuria on the fourth day in the hospital, which cleared in five days and remained normal thereafter. The Addis count was normal.

Nonprotein nitrogen was 40.2 mg. per hundred cubic centimeters of serum at the time of hematuria.

Blood culture was sterile January 17.

CASE 3.—C. M., a Negro girl aged 11 years, was admitted to the hospital Feb. 11, 1939, and discharged well March 24.

Six days before admission the patient noticed a copious discharge from her left ear. The next day her gait became unsteady. She continued to have fever and became increasingly weak until on the day of admission to the hospital she suddenly became unconscious.

Physical examination on admission showed that she was well developed and well nourished; she appeared critically ill. She was irrational and failed to respond to stimuli. She was in opisthotonos. There was an internal squint of the left eye. Foul pus drained from the left ear and there was a watery nasal discharge. The Kernig and Brudzinski signs were present. Lumbar puncture revealed cloudy spinal fluid which contained 4,300 cells, nearly all of which were polymorphonuclear leukocytes. On smear there were present numerous gram-positive diplococci which proved on culture to be type V pneumococci. The patient was treated with sulfanilamide for two days without improvement, and a simple left mastoidectomy done twenty-four hours after admission was not followed by any change in her condition. At the end of the patient's second day in the hospital the temperature was 105.6 F. She was in a comatose condition and appeared to be moribund. At this point she was given 70 cc. of a 5 per cent solution (3.8 Gm.) of the sodium salt of sulfapyridine intravenously and oral administration of sulfapyridine (6 Gm. a day) was begun. During the next twenty-four hours the temperature dropped to normal; the patient became conscious and was able to speak rationally. She received 6 Gm. of the drug each day for fifteen days and then 4 Gm. a day for the next seven days, after which time the sulfapyridine was discontinued. In addition to the sulfapyridine by mouth, she was given daily injections of the sodium salt of sulfapyridine intravenously for five days.

As noted, the temperature fell from 105.6 F. to normal within twenty-four hours after the first intravenous injection of sodium sulfapyridine. Thereafter it did not rise above 100.6 F. (rectal) until on the twenty-eighth day in the hospital, when it rose to 103 F. owing to the onset of agranulocytic angina. Ten days later the temperature became normal and remained so until discharge.

The mastoid wound healed uneventfully and at the time of discharge only a small granulating area still persisted. The spinal fluid count decreased from 4,300 cells on admission to 13 cells eight days later. The spinal fluid became sterile within twenty-four hours after the beginning of sulfapyridine therapy and remained so thereafter.

The chart is a graphic illustration of the patient's course during the first nine days in the hospital.

LABORATORY DATA

The spinal fluid cultures were positive for pneumococci (type V) February 11 and 13, and sterile February 14, 19 and 23.

The blood cultures were sterile February 11 and 15.

Blood counts showed: February 11, hemoglobin content 14 Gm., white blood cells 14,000 with 88 per cent polymorphonuclears; March 10, white blood cells 4,100 with 2 per cent polymorphonuclears and 98 per cent mononuclears; March 20, white blood cells 9,500 with 70 per cent polymorphonuclears.

Cultures of material taken from the ear and from the mastoid were positive for pneumococci (type V).

Examination of the urine showed 5 or 6 white blood cells per high power field, 2 plus albumin and a trace of acetone. Subsequent examinations were negative.

Culture of material taken from the throat at the time membrane appeared in the throat showed many beta hemolytic streptococci, group A, Lancefield.

SUMMARY

1. Seventeen patients with pneumococcic meningitis were treated with sulfapyridine or with sulfapyridine and its sodium salt.

2. Eight of these seventeen patients (47 per cent) recovered completely. Four of the nine who failed to survive died in less than twenty-four hours after admission to the hospital.

3. Sulfapyridine given by mouth is absorbed irregularly and only in limited amounts. It is recommended that the use of this drug be supplemented by the intravenous administration of sodium sulfapyridine at regular intervals. The concentration of free sulfapyridine in the spinal fluid should be maintained at a level of from 10 to 15 mg. per hundred cubic centimeters.

4. Certain toxic symptoms caused by sulfapyridine have been encountered. These include granulocytopenia and hematuria, neither of which was fatal in any of our cases.

8. Owing to lack of space reports of only case 2 and case 3 are included in THE JOURNAL. Reports of all seventeen cases will be found in the authors' reprints.

5. Hematuria occurring during treatment with sulfapyridine has been shown to be due to the formation of small calculi made up chiefly of the acetyl derivative of sulfapyridine. These calculi apparently produce hematuria by injury to the pelves, ureters and bladder.

6. It appears that the prognosis in pneumococcic meningitis may be greatly improved by the use of sulfapyridine and its sodium salt.

Harford Road at Herring Run.

A HITHERTO UNDESCRIBED SURGICAL PROCEDURE RELIEVING ATTACKS OF ANGINA PECTORIS

ANATOMIC AND PHYSIOLOGIC BASIS

RUPERT B. RANEY, M.D.

LOS ANGELES

Despite the various approaches to the problem of angina pectoris, uniformly complete relief from the condition by surgery or medicine has not been heretofore attained. On the assumption that coronary spasm occurs during attacks and is responsible for anginal pain, another operation has been designed which, so far as my experience permits of statements, seems to give uniform relief not by anesthesia but by prevention of coronary spasm.

It seems to be fairly generally accepted that coronary spasm occurs during seizures, but the mechanism is a much disputed question, confusion arising primarily from the reasonably well established normal behavior of these vessels. Any discussion on the surgical treatment is hardly complete without mentioning the name of Sir James Mackenzie,[1] whose timely criticism marks the dividing line between faulty speculation and sound scientific reasoning.[2] He suggested that a reinvestigation of the entire subject was necessary before any conclusions whatever could be drawn.

PHYSIOLOGIC BASIS FOR OPERATION

Following the suggestion of Mackenzie, Anrep and Segall [3] reported from their results in animal experimentation that sympathetic impulses under normal physiologic conditions induced coronary dilatation, a finding which would be expected from the known emergency function of the sympathetico-adrenal mechanism.[4] The work of Anrep and Segall was later verified by Kountz, Pearson and Koenig [5] by experiments conducted on human heart-lung preparations. They further observed that when the normal physiologic conditions in the coronary system were altered, for example, arteriosclerosis and change in hydrogen ion concentration of the perfusion fluid, the action was variable, often reversed.

The reversed action following sympathetic stimulation with reference to other organs of the body has been established by Morat,[6] Doyon,[7] Veach,[8] McCrea and McSwiney [9] and numerous others. Also it is well known that the action of efferent nerve impulses, whether sympathetic or otherwise, depends on the conditions at the myoneural junction rather than on the character of the impulse. This is best shown by experiments with crossed nerve sutures, of which the most pertinent are those of Langley and Anderson,[10] Cannon, Binger and Fitz,[11] Horrax,[12] Ballance [13] and Duel and Ballance.[14]

A survey of the literature forces one to agree with Wiggers [15] that "the nervous control of the coronary circulation and its physiological importance have not been demonstrated as definitely as the uninitiated are led to believe." Furthermore, Anrep [16] has attached considerable significance to pathologic changes in the coronary arteries with reference to altered function. He states (p. 94) that:

> The experiments made of fresh human material are far too few to allow us to draw definite conclusions. Still fewer are the experiments made on human hearts which show some pathological changes of the coronary system. Anitchkov and his colleagues have worked on resting human hearts some hours after death. They report that, in cases of arteriosclerosis and diphtheria, adrenalin, even in large doses, ceases to have any effect on the coronary blood vessels. We have had no opportunity of verifying this result; there is no doubt, however, that in arteriosclerotic conditions the coronary blood vessels behave quite differently from normal.

Unfortunately the older clinical impression that sympathetic impulses were coronary constrictor in their action during an attack of angina pectoris was discarded and replaced by the more recent concept of the normal action, the altered or reversed action resulting from pathologic changes not being taken into consideration. White [17] expressed this more recent and fairly general clinical opinion, which is well brought out by the following quotation (p. 235):

> Why resection of the superior cervical ganglion alone, as recommended by Coffey and Brown, should relieve a certain number of cases of angina pectoris remains a mystery. No afferent neurons have been found in the upper portion of the cervical sympathetic trunk (cf. chapter III). The only plausible explanation put forward was that a greater portion of the coronary constrictor fibers run through the superior cardiac nerve, and that its interruption increases the irrigation of the myocardium. In view of the more recent physiological findings, however, this can no longer be regarded as a valid explanation.

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The afferent mechanism, therefore, became the center of surgical attention, and moderation of seizures or relief from them by operations on the cervical sympathetic trunk was explained on the basis of interruption of the afferent pathway. The results reported by Jonnesco[18] from cervical ganglionectomy could be explained on this basis, but not those reported by Coffey and Brown.[19] Therefore, modifications of the Jonnesco

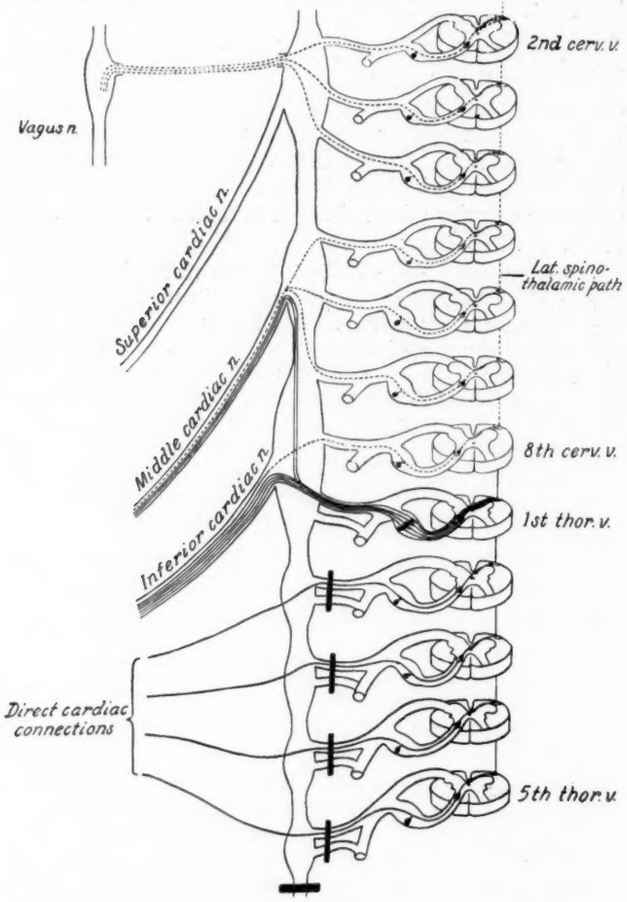

Fig. 1.—Diagram illustrating the principal afferent pathways from the heart. Heavy block lines indicates the points of surgical section, thus leaving the major portion of the sensory mechanism intact. (Modified from Heinbecker.)

operation for more extensively interrupting the afferent mechanism were recommended by Penfield,[20] Reid and Andrus,[21] Coleman and Lyerly,[22] Richardson and P. D. White,[23] Leriche and Fontaine,[24] J. C. White[25] and others. And, although some of the results reported were more encouraging than those reported by Jonnesco, they were far from satisfactory. Horner's syndrome invariably accompanied the operations and seizures frequently continued to recur even though pain had been abolished.

While the assumption that sympathetic impulses cause coronary spasm in angina pectoris has no direct evidence for support, certain other indirect evidence is available. The prevailing clinical opinion is that coronary spasm occurs in angina pectoris and is responsible for precordial pain. Leriche, Herrmann and Fontaine[26] have shown that typical seizures characteristic of angina pectoris can be precipitated in animals by constriction of a major coronary artery with ligatures. Now, during an actual attack of angina pectoris, all outward signs are those of sympathetic overactivity: (1) peripheral vasoconstriction, (2) tachycardia, (3) excessive perspiration, (4) gastric dilatation and the like. Therefore it seems reasonable to assume that if coronary spasm occurs during a seizure, as it is observed to occur in peripheral vessels, the same mechanism is responsible for the two phenomena.

Moreover, the study of the action of drugs offers considerable indirect evidence in support of this view. The action of epinephrine during a seizure has been observed to aggravate the seizure, and its constrictor action on peripheral vessels is established. On the other hand, nitrites, which relieve an attack presumably

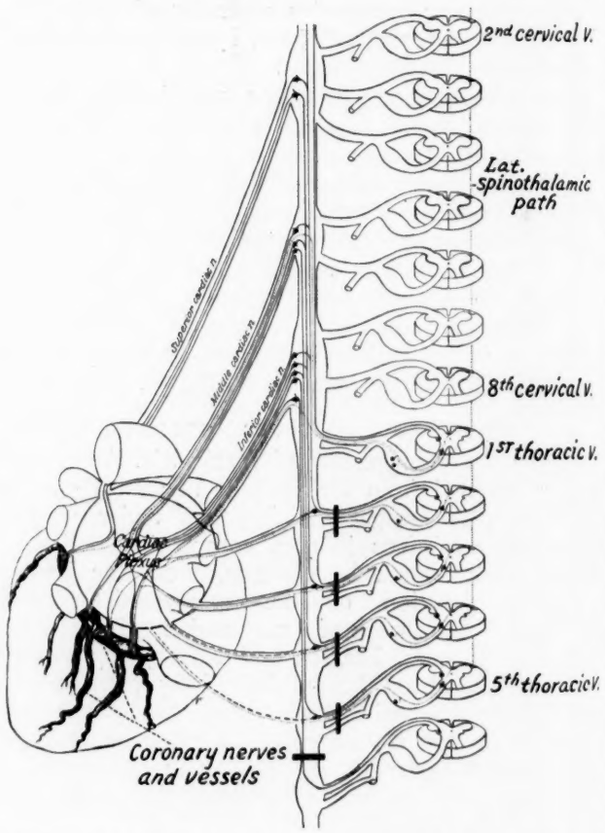

Fig. 2.—Solid lines show the spinal origin and course of the sympathetic efferent pathways to the coronary vessels. The block lines show the points of section for denervating the coronary vessels of their preganglionic sympathetic efferent nerve supply.

by relaxing coronary spasm, are known to cause vasodilatation on peripheral vessels, where such action can actually be observed. Now, since the coronary vessels themselves have not been observed during an anginal seizure in man, the inference that during a

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23. Richardson, E. P., and White, P. D.: Sympathectomy in Treatment of Angina Pectoris; Comparison of Results with Those from Paravertebral Alcohol Injection, Am. J. M. Sc. **177:** 161-178 (Feb.) 1929.
24. Leriche, R., and Fontaine, R.: Surgical Treatment of Angina Pectoris: What It Is and What It Should Be, Am. Heart J. **3:** 649-671 (Aug.) 1928; De l'existence dans l'anneau de Vieussens de fibers sensitives à effets: Importance de cette notion pour le traitément chirurgical de l'angine de poitrine, Comp. rend. Acad. d. sc. **187:** 999 (Nov. 26) 1928; Un sexieme cas d'angine de poitrine traité par des interventions sur le sympathique cervical, Strasbourg méd. **89:** 61-65 (Feb. 5) 1929; Chirurgie du sympathique, Rev. neurol. **1:** 1046-1085 (June) 1929.
25. White, J. C.: Painful Aneurysms of Aortic Arch: Relief by Paravertebral Injections of Procaine and Alcohol, J. A. M. A. **99:** 10-13 (July 12) 1932.
26. Leriche, R.; Herrmann, L., and Fontaine, R.: Ligature de la coronarie gauche et fonction cardiaque chez l'animal intact, Compt. rend. Soc. de biol. **107:** 545-546 (June 5) 1931.

seizure they respond to these drugs in the same fashion as their observed action on peripheral vessels cannot be logically disposed of.

Furthermore, the interruption of sympathetic efferent pathways is known to have given relief from attacks in a fair percentage of cases. This was shown by Coffey and Brown [19] when they reported their results from resection of the left superior cervical ganglion, and, since the superior cardiac nerve is now known to be

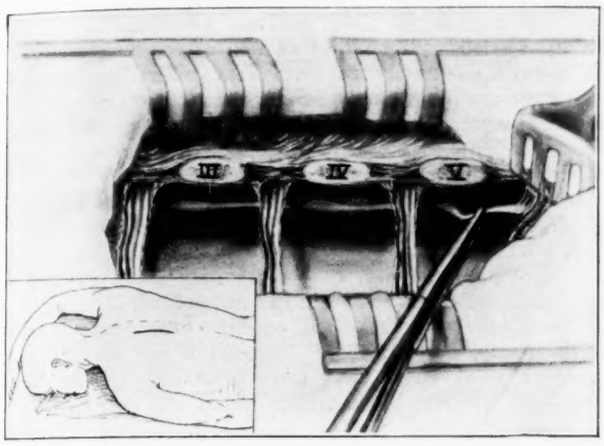

Fig. 3.—The artist's conception of the operation after exposure of the sympathetic chain and rami communicantes.

almost entirely efferent, the contribution accordingly was of exceptional value, because it shows that attacks were occasionally prevented by partially checking the inflow of sympathetic efferent impulses. Certainly the afferent mechanism was not sufficiently altered by the operation to explain the results (fig. 1). This evidence likewise must be taken into account.

Thus, although it appears that the normal and predominant action of sympathetic impulses in coronary physiology is to produce dilatation, the contention arises that under pathologic conditions—for example angina pectoris—the action is reversed; that is, such impulses produce coronary constriction. If this contention is sustained, we then have a single explanation for all the manifestations of the disease; an operation designed to interrupt this discharge of impulses could therefore be reasonably expected to give relief. However, before an operation is designed, the reaction of blood vessels to preganglionic and postganglionic sympathetic denervation must be taken into consideration.

The Meltzers [27] and Elliott [28] showed that, following postganglionic sympathetic denervation of smooth muscle, a permanent spastic condition developed from the direct action of epinephrine, muscle metabolites and other products normally found in the blood; they further observed that, following preglanglionic denervation, spasm did not occur. Thirty years later Smithwick, Freeman and White [29] verified these observations on smooth muscle of blood vessels. They then applied preganglionic denervation in the treatment of Raynaud's disease with remarkable success.

27. Meltzer, S. J., and Meltzer, Clara: A Study of the Vasomotor Nerves in the Rabbit's Ear Contained in the Third Cervical and in the Cervical Sympathetic Nerves, Am. J. Physiol. **9:** 57-68, 1903; The Share of the Central Vasomotor Innervation in the Vasoconstriction Caused by Intravenous Injection of Suprarenal Extract, ibid. **9:** 146-166, 1903; On the Difference in the Influence upon Inflammation Between the Section of the Sympathetic Nerve and the Removal of the Sympathetic Ganglion, J. M. Res. **10:** 135-141, 1903; On the Effects of Subcutaneous Injection of the Extract of the Suprarenal Capsule upon the Blood Vessels of the Rabbit's Ear, Am. J. Physiol. **9:** 252-261, 1903.

28. Elliott, T. R.: The Action of Adrenalin, Brit. M. J. **2:** 126-130, 1905.

29. Smithwick, R. H.; Freeman, N. E., and White, J. C.: Effect of Epinephrine on Sympathectomized Human Extremity: Additional Causes of Its Failure of Operations for Raynaud's Disease, Arch. Surg. **29:** 795-797 (Nov.) 1934.

ANATOMIC CONSIDERATIONS

On the assumption, then, that an abnormal action of sympathetic impulses resulting from pathologic changes at the myoneural junction is responsible for an attack of angina pectoris, an operation was planned to interrupt the pathways conveying these impulses. Anatomically it is possible to avoid the production of a Horner's syndrome, and at the same time to remove completely the sympathetic influence on the cardiac mechanism (fig. 2). The anatomy is well described by Ranson,[30] Kuntz,[31] Heinbecker [32] and others. To remove completely this influence it would be necessary to operate on both sympathetic trunks; however, unilateral (left) section so far is all that has been required for complete relief from attacks.

CHOICE OF ANESTHESIA

The choice of anesthesia is of considerable importance and should perhaps receive some attention here. All factors likely to increase emotional stress should be eliminated for the purpose of preventing the possibility of a fatal seizure. Leary [33] pointed out that death can occur from prolonged coronary spasm, even without thrombus formation. Adequate sedation should therefore be employed during the hospital interim prior to operation. If avertin with amylene hydrate is administered thirty minutes before the patient is conveyed to the operating room, it will do away with the emotional stress usually associated with this unpleasant trip; of further advantage, its action is vasodilator on the vascular tree. Finally, infiltration of the operative field with procaine hydrochloride gives a satisfactory anesthesia.

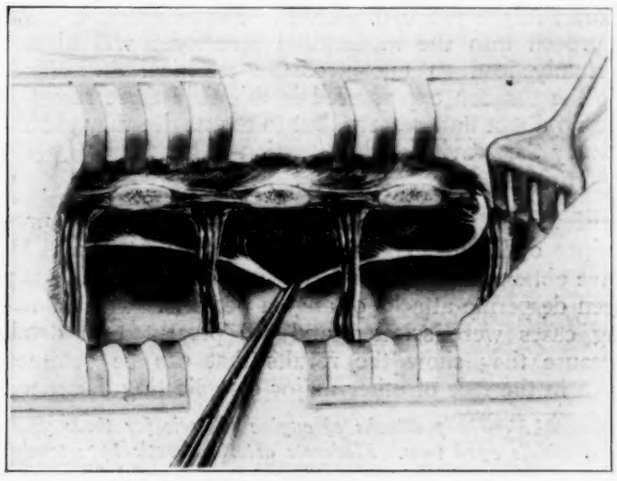

Fig. 4.—The artist's sketch here shows the operation completed; the rami communicantes have been sectioned and the sympathetic trunk between the fifth and sixth dorsal ganglions has been sectioned. The proximal end of the trunk has been sutured to the deep muscle layers as an added precaution against regeneration.

TECHNIC OF OPERATION

The operation is done through a paravertebral incision extending from the lower border of the second rib to the upper border of the sixth rib; whether on the left

30. Ranson, W. S.: The Anatomy of the Nervous System, Philadelphia, W. B. Saunders Company, 1931, p. 351.

31. Kuntz, Albert: The Autonomic Nervous System, ed. 2, Philadelphia, Lea & Febiger, 1934, pp. 128-140.

32. Heinbecker, Peter: Anatomic and Physiologic Criteria for Surgical Relief of Cardiac Pain, J. Thoracic Surg. **2:** 517-526 (June) 1933.

33. Leary, Timothy: Coronary Spasm as a Possible Factor in Producing Sudden Death, Am. Heart J. **10:** 338-344 (Feb.) 1935.

or on the right side, the technic is the same. A short portion of each of the third, fourth and fifth ribs is resected; the intercostal muscles are removed; thus the neurovascular bundles are exposed. The sympathetic chain from the second to the fifth dorsal ganglion and their corresponding rami communicantes are then exposed extrapleurally (fig. 3). Lastly, the operation is completed by section of the rami communicantes from

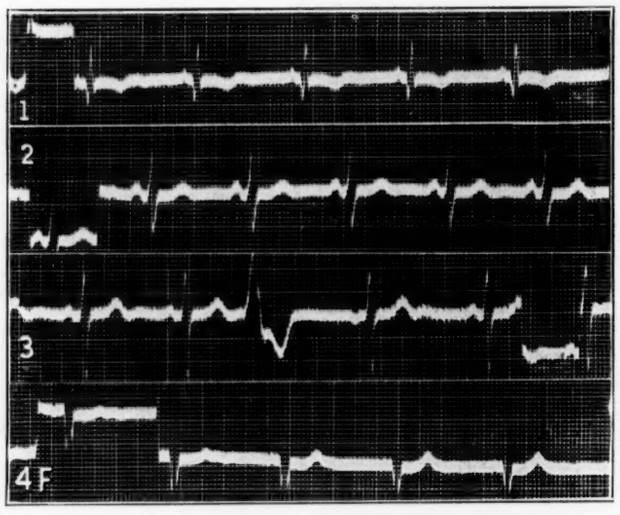

Fig. 5.—Electrocardiograms taken April 23, before the operation. Note particularly the abnormal inversion of the T wave in lead 1.

the intercostal nerves and section of the sympathetic chain between the fifth and sixth dorsal ganglions (fig. 4).

Exceptional care should be exercised in separating the parietal pleura from the vertebral column, since a sudden mediastinal shift from a spontaneous pneumothorax might prove disastrous. Furthermore, a blind approach into the mediastinal structures will almost certainly lead to uncontrollable technical difficulties. To the surgeon experienced in this field these remarks are no doubt unnecessary, but to the novice they should convey the gravity of the situation at hand.

REPORT OF CASES

Eleven patients have been operated on by the procedure outlined. There have been no deaths, and all have obtained complete relief from what had previously been desperate attacks of angina pectoris. The following cases were selected and are presented in detail because they show the results that can be obtained even in the face of other major complicating disorders.

CASE 1.[34]—*Daily attacks of angina pectoris for three years in a middle aged man. Moderate arteriosclerotic hypertensive heart disease and diabetes mellitus. Partial relief by nitrites during attacks. Electrocardiographic evidence of coronary disease. Complete relief from anginal seizures by preganglionic section of rami and trunk.*

F. S., a man aged 52, had spent the greater part of three years preceding the operation in the hospital because of daily attacks of angina pectoris. Since the onset he had suffered from five to ten attacks daily. They were partially relieved by nitrites but occasionally morphine was required. The attacks were initiated by a feeling of tightness in the throat and upper part of the chest that rapidly became painful. There was salivation, severe perspiration, oppressive abdominal distention and a fear of impending death. The pain then became agonizing and spread over the precordium and down the ulnar distribution of the left arm. Palpitation, pallor, a rise in blood pressure and tachycardia were also observed. The attacks were precipitated by slight exertion or emotional stress, and frequently they occurred from the mere anticipation of an attack. He continually kept nitrite tablets on his person; he would not even go to the bathroom without them. For the last eight or nine years he had been suffering from a mild form of diabetes mellitus. This was discovered incidentally to an examination during a siege of pneumonia. Insulin had occasionally been employed, although dietary measures have usually been sufficient.

On examination the blood pressure averaged 150 systolic and 100 diastolic. The retinal as well as the peripheral vessels showed moderately advanced arteriosclerosis. Repeated electrocardiographic examinations gave definite evidence of advanced myocardial damage. On two occasions cardiac decompensation had occurred. The general examination was otherwise negative.

Since the history and examinations indicated that considerable degenerative changes in the myocardium had already taken place, I was somewhat dubious about recommending the operation. The patient, however, was desperate and even after I had explained the danger he still had no hesitancy about accepting the chance of relief. The operation was performed the following day, May 1, 1937. Through a left paravertebral incision a short section was taken from each of the third, fourth and fifth ribs. The parietal pleura was separated from the vertebral column, and the rami communicantes from the second to the fifth dorsal ganglion inclusively were destroyed by electrocoagulation. The sympathetic chain was then sectioned between the fifth and sixth dorsal ganglions.

After two weeks the patient was allowed out of bed but, because of severe myocardial damage, complicated by diabetes mellitus and hypertensive heart disease, was kept in the hospital an additional four weeks for observation. There was no return of anginal seizures. At the time of discharge, moderate exercise was recommended. By the end of four months he was walking from 2 to 3 miles a day. He has faithfully returned at monthly intervals for observation, and when last seen twenty months after operation there had been no return of anginal seizures.

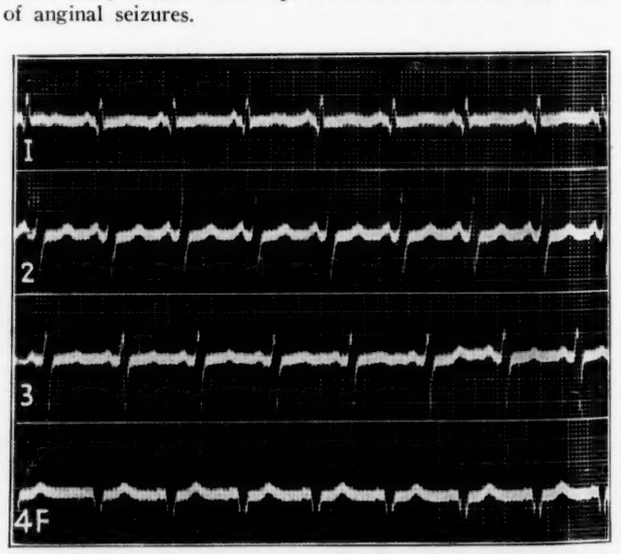

Fig. 6.—Electrocardiograms taken April 27, the second postoperative day. Note particularly the return of the T wave in lead 1 toward normal compared to the record taken four days before.

Here was a patient who almost beyond question was suffering from an advanced degree of coronary sclerosis and most probably had had one or more attacks of coronary thrombosis but was able to obtain temporary relief from the nitrites. It therefore seems reasonable to assume that an abnormal action of sympathetic impulses, on the basis of the principle of reversed action, was responsiblle for attacks rather than simple

34. This case was cited in a preliminary report read before the California State Medical Association at Pasadena in May 1938.

narrowing of the lumen of the vessels from arteriosclerotic coronary disease presumably present. Moreover, the assumption that the reversed action of sympathetic impulses was responsible for the presumed coronary spasm during attacks seems justified, since the operation gave complete relief. Furthermore, coexisting disease which has been demonstrated in this case obviously was not a contraindication to the operation.

CASE 2.—*Frequent attacks of angina pectoris in an elderly man for fifteen months. Temporary relief during seizures by the nitrites. General arteriosclerosis, moderate hypertensive heart disease and at least one major attack of coronary thrombosis. Complete relief from seizures by preganglionic section of rami and trunk.*

T. H., a man aged 72, had been suffering for the past fifteen months from attacks of distress in the upper part of the abdomen; they usually occurred after eating, exercise or emotional stress and left him in a state of exhaustion. In February 1938, one year after the onset, he suffered a more severe attack, which came on after a game of golf and an evening meal; it started as had the previous ones. The stomach "felt stuffed as though it were filled with mud"; about an hour after the onset pain in the chest developed which radiated into both arms, more markedly on the left side. A physician was summoned and morphine was administered for relief. After a few days the patient felt well except for persisting minor attacks. For these he took nitrite tablets, which gave relief. During the succeeding two months he suffered two additional severe attacks similar to the first; each time relief was obtained by taking nitrite tablets. During the past year the patient had lost 20 pounds (9 Kg.); he starved himself in attempting to prevent attacks.

The past history was of importance, since he had always been nervous and had occasionally suffered from what he called "nervous indigestion." As a young man he had suffered from "nervous spasm in the lower part of the rectum." The attacks had usually occurred while lying down and were relieved on sitting up. For the past five years he had suffered from an anxiety state and episodes of mental depression, during which time he had two "nervous breakdowns."

On examination April 21, 1938, he was poorly nourished; he was 6 feet (183 cm.) tall and weighed 128 pounds (58 Kg.). The pulse rate was 65 beats a minute, the temperature was 98 F., and the blood pressure was 150 systolic and 110 diastolic. There was generalized arteriosclerosis, and electrocardiograms repeatedly showed a deep inversion of the T wave in lead 1. Roentgenograms of the chest and gastrointestinal tract were negative. The Wassermann reaction of the blood was negative; the blood urea was 16 mg. per hundred cubic centimeters. Routine examinations of the blood and urine were essentially negative. Since medical measures and rest had failed to control the attacks, operation was recommended.

Two days later the patient was admitted to the Hospital of the Good Samaritan for observation prior to operation. The following day electrocardiograms showed changes compatible with coronary disease (fig. 5). That afternoon the patient suffered a sudden attack of abdominal distress and distention; the heart rate became fast and there was a sensation of tightness and weight in the chest and throat; pallor and excessive perspiration on the forehead and upper extremities were observed, and nitrite tablets again afforded relief.

The next morning (April 25) a preganglionic ramisection was done on the left side; the rami communicantes from the second to the fifth dorsal segment of the spinal cord were destroyed by electrocoagulation, and then the sympathetic chain between the fifth and sixth dorsal ganglions was sectioned. During the operation the patient showed no evidence of cardiac embarrassment or other ill effects; Horner's syndrome was not produced.

On the second postoperative day another electrocardiogram was taken which showed the T wave in lead 1 to have returned toward the normal upright position (fig. 6). The patient's subsequent postoperative course was likewise uneventful. He was dismissed from the hospital at the end of four weeks. When last seen eight months after the operation he had gained 30 pounds (13.6 Kg.), was taking exercise and had remained free from attacks.

Here again is a patient with angina pectoris and major complications, viz., coronary thrombosis and hypertensive heart disease, yet operation was accomplished without untoward effects and complete relief from the attacks was obtained. Of further interest was the almost immediate change in the electrocardiograms from a pathologic character one day before operation toward a normal character the second day after operation. Although this observation was striking, no conclusions were drawn because they would necessarily be speculative. Other patients having had simillar studies made showed no change whatever in the electrocardiograms; however, complete relief from seizures was obtained. Finally, the management of this patient's psychiatric problem was greatly facilitated, not only because of relief from pain and anxiety concerning attacks but also because of improvement in his general physical condition.

SUMMARY

Eleven patients have been treated by the operation here described. There have been no deaths, and all have obtained complete relief from what had previously been desperate attacks of angina pectoris.

The operation is based on the assumption that in angina pectoris the sympathetic action on the coronary vessels is reversed, because of pathologic changes occuring about the myoneural junction; i. e., sympathetic impulses in such cases produce coronary constriction.

Other operations heretofore recommended in the surgical treatment of angina pectoris have given relief at the expense of postganglionic fibers or afferent fibers or both. Such postganglionic operations are subject to the same criticisms that have brought about discard of this type of operation in the surgical treatment of Raynaud's disease. Operations devised to relieve pain by the interruption of afferent pathways are only palliative measures; they remove the warning signal of an impending seizure but do not attack the patient's real trouble.

The operation here described is a preganglionic operation; the major portion of the afferent mechanism is left intact and thus the warning signal is not removed; Horner's syndrome is not produced, and the efferent pathways on the operated side are almost entirely interruped. A complete interruption of the efferent pathways to the coronary system theoretically would necessarily involve a bilateral operation; however, operation only on the left side is all that has been required to give complete relief from attacks.

727 West Seventh Street.

A Truly Black-Skinned Child.—How this sorting out and recombination of the genes takes place is shown in our accompanying color-plate. We can see by this why a truly black-skinned child can be produced only if both parents carry some Negro-skin-color genes. This should dispose of the old superstition, common in yesterday's fiction, of how a woman with some hidden Negro blood, "passing" as white and married to a White, might give birth to a coal-black baby. Where a black baby does unexpectedly turn up, it can be taken for granted that (*a*) both parents have Negro ancestry or (*b*) that the parentage is doubtful. In reverse, it would be equally impossible for a Negress with hidden white blood to be mated with a full-blooded Negro and give birth to a white child.—Scheinfeld, Amram: You and Heredity, New York, Frederick A. Stokes Company, 1939.

CORNEAL EXAMINATION AND SLIT LAMP MICROSCOPY

IN DIAGNOSIS OF LATE CONGENITAL SYPHILIS, ESPECIALLY IN ADULTS

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AND
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A cornea once involved with interstitial keratitis caused by congenital syphilis presents, almost without exception, certain sequelae which persist for the rest of the patient's life. Although the characteristic signs of an old interstitial keratitis can often be detected by oblique illumination and ophthalmoscopic examination, a proper study should and often can be performed only by biomicroscopy. With the corneal microscope and slit lamp a diagnosis of old interstitial keratitis can invariably be made, regardless of the age of the patient. We believe that the importance of slit lamp examination in clinical syphilology has not been sufficiently emphasized. The changes observed may be the only evidence of congenital syphilis. Their presence in adults and old patients may explain the absence of the history of infection, and they may serve as a means of interpreting positive or weakly positive results of Wassermann or precipitation tests. In the presence of other signs of syphilis a diagnosis of old interstitial keratitis determines the status of infection—congenital syphilis—and therefore has an important bearing on treatment and prognosis.

Briefly, it may be stated that interstitial keratitis is characterized by an infiltration throughout the entire thickness of the cornea, particularly the middle and deep layers, by the formation of blood vessels in the superficial, middle and deep layers (fig. 1) and by the association with uveitis. When caused by congenital syphilis it is always bilateral. As a consequence both corneas remain more or less permanently scarred and vascularized.

It should be emphasized that in many cases of interstitial keratitis the cornea recovers to such an extent that the scarring may be so faint and the remaining blood vessels so few and small that they can be detected only by means of slit lamp microscopy. Furthermore, the location, character and extent of the corneal haze and of the vessels, which are often impossible to determine by the ordinary methods of examination, are extremely important in diagnosis of old interstitial keratitis. The remains of a previous uveitis may be and often are detected only by slit lamp microscopy.

Regardless of the extent of involvement of the cornea, it is possible to make an almost certain diagnosis of a previous interstitial keratitis in nearly every case and after any length of time. One experienced in slit lamp microscopy can generally differentiate other forms of interstitial keratitis from the syphilitic type. When caused by syphilis the cornea presents a classic slit lamp picture.

EXAMINATION OF THE CORNEAS OF PATIENTS WITH OLD INTERSTITIAL KERATITIS

The corneas of 100 patients who had interstitial keratitis were inspected grossly, by oblique illumination, and were examined with the ophthalmoscope and by slit lamp microscopy to demonstrate evidence of old interstitial keratitis. The patients were both children and adults. The age range was from 6 to 65 years. The majority were under 30. Ninety-three of the patients had been patients in Wills Hospital at the time their interstitial keratitis was active. Corneal examination for old evidence of interstitial keratitis was made on these former patients from one to twenty years after the onset of interstitial keratitis. For seven patients the interval was still longer, in some cases as long as fifty years. Some of these patients had no knowledge of ever having interstitial keratitis, but they were included in the series since they showed by slit lamp microscopy the classic picture of old interstitial keratitis.

The corneas were inspected grossly to determine the presence of opacities. Inspection by oblique illumination facilitated seeing corneal opacities. Ophthalmoscopic examination was performed with the plus 20 lens in order to see old blood vessels and corneal opacities, which are sequelae of interstitial keratitis. If blood vessels were not seen with the pupil undilated, examination was repeated after dilating the pupil. Dilation may be necessary in order to see vessels present only toward the periphery of the cornea. In some cases corneal opacities not seen on gross inspection or by oblique illumination were visible only after the pupil had been dilated and examined with the ophthalmoscope when the eye was turned in different directions. Old blood vessels as seen through the ophthalmoscope appear as black threads against the red fundus reflex (fig. 2). They resemble scratches on a glass surface and are commonly referred to as brushlike. Usually they are numerous and are scattered throughout the cornea; at times they number only a few and, as aforementioned, are confined to the periphery. Of course other pathologic processes, notably interstitial keratitis of other than syphilitic origin, that are later evidenced by opacities and old blood vessels should be considered in differential diagnosis. Although it is not our purpose to discuss differential diagnosis, it may be briefly stated that the history, the location of the opacity and the arrangement of the vessels are differentiating features. Slit lamp microscopy may be necessary for differential diagnosis.

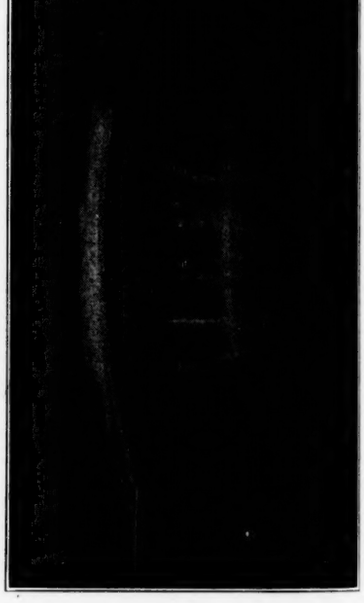

Fig. 1.—Section through the cornea as seen with a narrow slit of light in biomicroscopy. The direction of the vessels as actually seen is perpendicular, not horizontal as is indicated in the drawing. The portion of the vessel that seems to terminate in front indicates the depth, or the plane of the cornea in which the vessels lie. In interstitial keratitis vessels lie in any deep plane.

In the cases studied, the ordinary methods of examination, as far as they concerned opacities and old blood vessels, did not always confirm the microscopic view in

From the Wills Hospital.
Read before the Section on Dermatology and Syphilology at the Ninetieth Annual Session of the American Medical Association, St. Louis, May 18, 1939.

the slit lamp examination. In this examination opacities were present that were not apparent on gross inspection and old blood vessels were seen that could not be seen with the ophthalmoscope.

With the plus 20 lens of the ophthalmoscope, old blood vessels could be seen in corneas that had or had not gross opacities. Ophthalmoscopic examination is therefore more reliable than is gross inspection in diagnosis of old interstitial keratitis. On the other hand, corneas that were grossly clear, and in which blood vessels or other faint sequelae of interstitial keratitis were missed when examined by the ophthalmoscope and by oblique illumination, presented by slit lamp microscopy aforementioned changes that justified a diagnosis of old interstitial keratitis. Slit lamp microscopy is therefore more reliable in diagnosis of old interstitial keratitis than is study by oblique illumination and the ophthalmoscope. We are unacquainted with reports of studies of slit lamp microscopy in patients with old interstitial keratitis as an aid in diagnosing congenital syphilis. It is well known that opacities resulting from interstitial keratitis may persist indefinitely, and ophthalmologists are cognizant of the fact that residual blood vessels usually remain permanently. Igersheimer [1] recorded the statement that folds in Descemet's membrane arising from descemetitis accompanying interstitial keratitis may remain for the rest of the patient's life, and Ronne,[2] in referring to corneal opacities, referred to "not a few cases where at a later stage, by the help of the residual maculae cornea, I have diagnosed congenital syphilis."

Case 1 concerns a 49 year old woman who presented the type of folds in Descemet's membrane to which Igersheimer referred. Other changes seen by slit lamp microscopy were regarded as diagnostic of interstitial keratitis.

CASE 1.—A Negro woman aged 49 came to the eye clinic on account of poor vision. She was married and had had one miscarriage; there were no living children. She was the third born of a family of four. Both eyes were "sore" at about the age of 7 and remained inflamed for about three months. She received only local treatment to the eyes. She had no knowledge of ever receiving antisyphilitic treatment.

She had no stigmas of congenital syphilis. On gross inspection both corneas showed scattered fine opacities and old blood vessels by ophthalmoscopic examination. The vision of the right eye with correction was 6/60 and of the left eye with correction was 1/60. The Wassermann reaction was 44—; the Meinicke reaction was 4 plus.

The diagnosis of old interstitial keratitis with uveitis was made by slit lamp examination. The corneas were thinned, irregular and hazed throughout with considerable increase in relucency in the posterior portions. There were numerous folds, wrinkles and ruptures in Descemet's membrane. There were numerous blood vessels in the cornea and precipitates on the posterior surface of the cornea. The iris was atrophied and showed a few small synechiae.

CLINICAL APPLICATION OF SLIT LAMP MICROSCOPY IN DIAGNOSIS OF CONGENITAL SYPHILIS

Slit lamp examination in diagnosis of old interstitial keratitis as evidence of congenital syphilis is of most value in the clinical examination of adults whose Wassermann or precipitation reactions are in some degree positive, without history of infection and without other evidence of congenital syphilis. Such examination of children with stigmas of congenital syphilis and positive Wassermann reactions is of course not necessary. However, in such patients, in the absence of corneal opacity and of history of "sore eyes," slit lamp examination definitely determines whether the cornea has or has not been involved with interstitial keratitis.

The diagnosis of old interstitial keratitis by slit lamp microscopy is valid evidence of congenital syphilis.[3] Of course a diagnosis of congenital syphilis in an adult interprets the positive Wassermann reaction and defines the status of infection, which is necessary for proper treatment of syphilis. This is illustrated in case 2, which concerns a 58 year old patient who had objective signs of tabes and a 4 plus Wassermann reaction. Slit lamp microscopy established the diagnosis of old interstitial keratitis. The administration of antisyphilitic treatment to this patient would be of questionable value.[4]

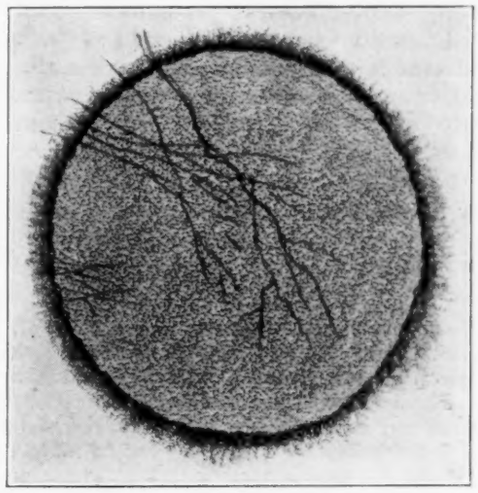

Fig. 2.—Blood vessels in the cornea after interstitial keratitis as they appear with the ophthalmoscope against the reflex light from the retina.

CASE 2.—A man aged 58 came to the clinic because of poor vision. He had always had poor eyesight and had worn glasses for many years. He was an only child. He remembered having sore eyes when a child but could not recall any details. He stated that he had never had a genital lesion. After a "blood" test ten years before he received injections in the arm at intervals for three months.

The pupils were unequal and irregular in outline. The right pupil was fixed to light. The left reacted slightly to light.

1. Igersheimer, Josef: Syphilis und Auge, in Jadassohn, Josef: Handbuch der Haut- und Geschlechtskrankheiten, Berlin, Julius Springer, 1928, vol. 12.

2. Ronne, Henning: Treatment of Tardive Congenital Syphilis Seen in Social Light, Acta Ophth. **12**: 215-219, 1934.

3. Interstitial keratitis occurring in acquired syphilis is extremely rare. Although it has been reported, we have never observed a case. Such of the reported cases as we reviewed we did not regard as valid since slit lamp examination was apparently not performed. Other conditions that resemble interstitial keratitis were therefore not definitely excluded. Igersheimer stated that when syphilis is acquired in early childhood symptoms characteristic of congenital syphilis may later appear. He held that in such patients interstitial keratitis first appears in adult or late adult life. Such occurrence is apparently included in the following statistics as to the ratio of interstitial keratitis in acquired and in congenital syphilis. Grounew stated that the ratio is 1: 133; Igersheimer gave 1: 247; and in Adamantiadis' series it was 3: 1,000 (for further discussion see Igersheimer.[1] Granstrom, K. O.: Die Keratitis Parenchymatosa in späterem Alter, Acta Ophth. **12**: 122, 1934. Adamantiadis, B.: Kératite pustuliforme profonde et les diverses formes de la kératite parenchymateuse syphilitique acquisé, Ann. d'ocul. **172**: 304 [April] 1935).

4. As a principle of treatment in patients with late congenital syphilis, it may be stated that the higher the age when the disease is first discovered, the less the indication for the administration of syphilitic therapy. The chief hazard of congenital syphilis is interstitial keratitis. After the age of 20 its incidence greatly decreases. The transmission of the infection from persons with congenital syphilis to their progeny—third generation syphilis—is rare. The prognosis of congenital syphilis in adults in relation to the occurrence of cardiovascular involvement and neurosyphilis is not pertinent, as it is for patients of the same age with acquired syphilis.

Gross inspection of the corneas showed faint opacities. The vision with correction was right eye 6/15, left eye 6/30. On slit lamp examination of the right eye the central portion of the cornea was gray with a moderate loss of smoothness. The posterior surface was thickened and fairly opaque and contained a number of old blood vessels deeply situated. Examination of the left eye showed essentially the same features.

The patellar reflexes were absent and the Romberg sign was positive. The patient presented no stigmas of congenital syphilis and had no subjective symptoms of tabes. The Wassermann reaction of the blood was 4 plus and the Meinicke reaction 2 plus. The spinal fluid examination yielded negative results in all phases.

With regard to the value of slit lamp examination in the study of adults, the following comments are pertinent. The incidence of congenital syphilis in the general population, as given by different writers, ranges from 0.5 to 3 per cent and the incidence of interstitial keratitis among patients with congenital syphilis ranges from 25 to 50 per cent.

It is a remarkable fact that many patients who have had interstitial keratitis cannot in later life remember ever having had "sore eyes." It is to be recalled that interstitial keratitis may occur as early as the age of 1 year and that it may pursue, even in the absence of treatment, a mild course, retrogressing without the occurrence of corneal opacities and without much impairment of vision.

Patient 3 had no knowledge of having had interstitial keratitis. There were no stigmas of congenital syphilis. The presence of corneal opacity suggested old interstitial keratitis. Slit lamp microscopy confirmed the diagnosis.

CASE 3.—A man aged 32 was seen by one of us (J. V. K.) in the surgical ward of a hospital. He had a fractured femur. The Wassermann test routinely conducted showed a 2 plus reaction. He denied ever having a genital lesion; he had no knowledge of ever having "sore eyes" or receiving antisyphilitic treatment or a previous blood test. He had no stigmas of congenital syphilis. On examination for evidence of syphilis a faint opacity of the cornea was noted. The diagnosis of old interstitial keratitis was made by slit lamp examination.

A considerable percentage of patients with congenital syphilis do not have any of the well known stigmas of their disease. In studies [5] of such stigmas among patients with interstitial keratitis it was observed that 17.5 per cent had hutchinsonian teeth, 29 per cent had chronic periostitis of the tibia (saber-shaped, or Fournier's, tibia), 45.5 per cent had the physiognomy of congenital syphilis and 18 per cent had symmetrical serous synovitis (Clutton's joints). It is to be recalled that these stigmas are less likely to be recognized or are absent in adults. Clutton's joints are seen only in children. Hutchinsonian teeth may have been extracted, or their notched surfaces, through use, are less apparent. The physiognomy of congenital syphilis is less typical in adults, especially after middle age.

A number of patients with congenital syphilis attain adult life without evidence of their infection except a positive Wassermann reaction. Such patients deny all knowledge of infection. It is well known that patients with acquired syphilis may give no history of infection. A certain percentage, therefore, of adult patients whose Wassermann reactions are positive and who are without history of infection are congenitally syphilitic. In a certain percentage of this group corneal examination in the manner herein discussed may be the means of diagnosing or confirming a diagnosis of congenital syphilis.

CASE 4.—A girl aged 10 was first seen in April 1937, with interstitial keratitis of the right eye which pursued a mild course. There were no stigmas of congenital syphilis. The Wassermann reaction was 4 plus. Antisyphilitic treatment was administered. Interstitial keratitis which subsequently appeared in the left eye was mild and of short duration.

Twenty-two months after the patient was first seen the corneas were grossly clear. A former opacity of the right cornea had disappeared. Small opacities confined to the upper portion of both corneas were visible only with the ophthalmoscope and with the pupil dilated. A few blood vessels were seen in the left eye. The vision in both eyes was 6/9 and the Wassermann reaction was still 4 plus.

On slit lamp examination of the right eye the posterior portion of the cornea, particularly in the center, was increased in relucency. Also in the posterior portion of the stroma there was an irregular area of thin opacities. There were some deep vessels above. The anterior chamber was clear. The iris was intact. Examination of the left eye showed essentially the same changes.

There are few reported studies showing how long the Wassermann reaction of patients with congenital syphilis remains positive. In Saul's [6] series of eighty-one patients with old interstitial keratitis reexamined from thirteen to twenty-eight years later the Wassermann reaction of sixty-five was positive and of the rest negative.

In our observation of patients in late adult life with congenital syphilis for whom the diagnosis of old interstitial keratitis was made, the Wassermann reaction was variable. It ranged from negative to strongly positive. Apparently, therefore, the positive Wassermann reaction of congenital syphilis may remain positive throughout the patient's life in treated as well as untreated patients (cases 1, 2, 3, 6). On the other hand it may become negative even in the absence of treatment. The following record of a case serves as an illustration:

CASE 5.—E. W., a white woman aged 27, unmarried, was the third child of a woman receiving antisyphilitic treatment in the clinic. The mother had had no miscarriages or stillbirths. She had three sons and a daughter (E. W.) who had "sore eyes" when a child. Both the daughter's eyes were involved for about a year and apparently only local treatment was administered. The patient was frail and underweight. She had no subjective complaint and had no knowledge of ever having received antisyphilitic treatment. There were no stigmas of congenital syphilis. The Wassermann and Meinicke reactions of her blood were negative. Diagnosis of old interstitial keratitis was made by slit lamp examination. This examination showed old blood vessels running from the limbus toward the center of the cornea, through which blood was circulating. There were numerous scattered punctate deposits in the deep layers of the cornea and a general haziness throughout.

One older and one younger brother showed no evidence of congenital syphilis on clinical and serologic examination.

The patient showed how benign a course congenital syphilis can pursue. Slit lamp microscopy definitely established old interstitial keratitis, which diagnosis was suggested by the history of "sore eyes" and the fact that her mother was syphilitic.

We believe that every patient who has had interstitial keratitis will subsequently present, probably permanently, a diagnostic picture of old interstitial keratitis by slit lamp examination. This picture constitutes in one sense a stigma of congenital syphilis.[7]

5. Klauder, J. V., and Robertson, H. F.: Symmetrical Serous Synovitis (Clutton's Joints), Congenital Syphilis and Interstitial Keratitis, J. A. M. A. **103**: 236-240 (July 28) 1934.

6. Saul, Hugo: Ueber das Schicksal der Patienten mit Keratitis parenchymatosa, Ztschr. f. Augenh. **86**: 199 (June) 1935.

7. What are popularly called the stigmas of congenital syphilis refer fundamentally to structural changes of a permanent nature such as hutchinsonian teeth and saber-shaped, or Fournier's, tibia. According to this concept Clutton's joints and ocular changes caused by interstitial keratitis would not be included.

Patient 6 presented on gross and ophthalmoscopic examination evidence of old interstitial keratitis, more definitely revealed, however, by slit lamp microscopy.

CASE 6.—A man aged 65 complained only of poor vision, for which he came to the clinic for refraction. He was the oldest of a family of seven, of whom six were living. His wife had had many miscarriages but only one child, who died at the age of 3. He stated that he had never had a genital lesion. He had no knowledge of having "sore eyes" when a child or of ever having received antisyphilitic treatment.

Results of the general physical examination were essentially negative. The teeth were absent. There were no stigmas of congenital syphilis. Both corneas on gross inspection showed faint opacities and old blood vessels by ophthalmoscopic examination. The vision of the right eye was 6/30, with correction 6/21, and of the left eye 6/60, with correction 6/30. Positive diagnosis of old interstitial keratitis was made by slit lamp examination. Throughout the entire corneas of both eyes there were opacities of varying densities, particularly in the upper portions. There were some deep blood vessels. The aqueous was clear and the iris was intact.

Repeated examination of the blood showed a 1 plus and a 2 plus Wassermann reaction and a 2 plus Meinicke reaction.

The clinician and the syphilologist should be conscious of the cornea and the sequelae of interstitial keratitis as herein discussed when examining children and adults suspected of having or known to have syphilis. Inspection of the cornea for opacity, even though faint, of which the patient may not be cognizant, and examination by oblique illumination and also with the plus 20 lens of the ophthalmoscope are clinical procedures easily conducted. These examinations may suggest the more valid means of diagnosing old interstitial keratitis—slit lamp microscopy. In the exclusion of congenital syphilis in a patient of any age, examination is not complete unless slit lamp microscopy has been performed. A negative outcome of this examination is evidence that the patient has not had interstitial keratitis, though of course it does not prove the absence of congenital syphilis.

1934 Spruce Street—1930 Chestnut Street.

ABSTRACT OF DISCUSSION

DR. JAMES R. DRIVER, Cleveland: The paper of Drs. Klauder and Cowan brings to our attention an important diagnostic method for the recognition of certain eye symptoms in late congenital syphilis. The use of the slit lamp in the examination of the cornea in syphilitic patients is of course not new. However, I agree with the authors that in the past this procedure has been neglected by syphilologists. I know of no textbook on syphilis that mentions or recommends its use. We as syphilologists must depend on the ophthalmologists for the examination and largely the interpretation of these observations. We have here an example of the importance of the close cooperation which the syphilologist must have with all other branches of medicine if the best in diagnosis and treatment of syphilitic patients is to be achieved. For two years at the University Hospital in Cleveland we have been using slit lamp microscopy as a routine procedure in the examination of all cases of congenital syphilis and in suggestive cases. More than sixty cases of congenital syphilis have been examined so far. In discussing the work with Dr. L. V. Johnston, who has made all of the examinations, I find that he agrees with the authors that (1) there are instances in which it was possible to make a diagnosis of old healed interstitial keratitis when oblique illumination and ophthalmoscopic examination failed to reveal its presence and (2) the picture of old interstitial keratitis as seen by the slit lamp is almost pathognomonic of the disease. The authors brought out, and I agree, that all patients with unexplained positive serologic tests either of the blood or of the spinal fluid should have their corneas examined by the slit lamp. In this way late congenital syphilis may be diagnosed in patients showing perhaps no other stigmas of the disease. Of course, it is taken for granted that slit lamp examination simply supplements complete ophthalmoscopic study for other evidences of the disease in the eye. The paper deals only with the subject of late changes due to interstitial keratitis. I should like to mention that in our work with the slit lamp we have found its use valuable in giving a prognosis for patients showing active interstitial keratitis. Parents, guardians or social agencies want to know whether the individual so affected will be able to see. Plans for the future must often be made in advance. Now, since the character and severity of the disease can best be determined by slit lamp examination, this becomes easier. We have found that in several cases in which the cornea is thickened, owing chiefly to edema, even in the presence of much exudate the prognosis is good provided there is not extensive vascularization of the cornea.

DR. JOHN MCLEOD, Kansas City, Mo.: At the clinic for congenital syphilis in the Children's Mercy Hospital in Kansas City we have used the slit lamp in a large number of cases as an aid in the diagnosis and prognosis of congenital syphilis. We have found that slightly vascularized opacities offer much better prognosis than those more heavily vascularized. It must be remembered that treatment of interstitial keratitis by hyperpyrexia may produce complete clearing of the cornea in occasional cases, so that even in a relatively short time thereafter no traces are evident. Rigorous slit lamp examination of the cornea six months after the subsidence of the disease may show absolutely nothing. In most cases there are associated with the keratitis certain other ocular stigmas, of some of which a directly syphilitic origin is uncertain. Among these may be mentioned the filming or veiling of the iris, described by Lemoine in 1934, consisting of a very fine veil, probably of connective tissue, over the entire iris and filling up the crypts. This is common in interstitial keratitis and in juvenile tabetic dementia paralytica, the type of patient in which one sees an enlarged vertically oval pupil fixed to light and accommodation but reacting to drugs. Our records, dating back to about 1916, show an incidence of interstitial keratitis of something over 5 per cent. In 24 per cent of these, I think, the spinal fluids have been positive. In practically all there has been some other ocular stigma of syphilis: typical syphilitic chorioretinitis, veiling of the iris, adhesions between the iris and lens or some of the minor fundus changes. These minor fundus changes vary from the so-called salt and pepper fundus on up through the peripheral chorioretinitis which is frequently associated with interstitial keratitis and, on the other hand, downward to almost complete normality, with a little more than normal pigmentation around the periphery of the retina. In using the slit lamp for the diagnosis of syphilis, one must bear in mind that tuberculosis produces a keratitis which may in its late stages resemble closely syphilitic interstitial keratitis. The recommendation for the use of the slit lamp as an aid in diagnosis of old congenital syphilis is excellent, but its use should be combined with a complete ophthalmoscopic and perhaps perimetric examination of the eye as well.

DR. JOSEPH V. KLAUDER, Philadelphia: The slit lamp should be used in study of all cases of interstitial keratitis. In fact, I think it is the court of final appeal in the diagnosis of the disease. I do not believe that the diagnosis of interstitial keratitis can be made in 100 per cent of cases by other methods. That has been apparent in the number of cases we see at the Wills Hospital in Philadelphia. I do not believe that slit lamp microscopy in the acute stage of interstitial keratitis is always helpful in making a prognosis. It is well known that opacities in the acute stage disappear to a variable degree, at times to a considerable degree, so that the end result is unexpectedly good. Poor vision after interstitial keratitis does not alone concern residual blood vessels or opacities, of course excepting leukoma. An important factor is the disturbance of the normal contour of the anterior and posterior surfaces of the cornea. Patients in adult life frequently do not recall their interstitial keratitis of childhood. The absence of history of "sore eyes" may not have any significance. Moreover, it is thought by some that interstitial keratitis may occur in intra-uterine life. It would be interesting to examine by slit lamp microscopy the oldest child of parents with syphilis. I say the oldest child, since interstitial keratitis is more likely to appear in the first born.

CARDIAC ASTHMA AND ACUTE PULMONARY EDEMA COMPLICATING TOXEMIAS OF PREGNANCY

FURTHER OBSERVATIONS

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Recently we called attention to an interesting and dramatic symptom complex which occasionally complicates the severe nonconvulsive toxemias of pregnancy.[1] It is characterized by the sudden appearance in a previously comfortable patient of extreme orthopnea, dyspnea, cyanosis and cough productive of frothy and often pinkish sputum. Numerous crepitant rales appear with the onset of the attack, and they persist, at least in the lung bases, for a variable period thereafter.

Attacks have usually occurred in patients while at rest in bed. They closely resemble severe attacks of cardiac asthma such as occur characteristically in nonpregnant persons with conditions that impose a burden on the left venticle, notably severe hypertensive disease, aortic insufficiency and nephritis with hypertension.

We referred to this complication of nonconvulsive toxemias of pregnancy as "cardiac asthma and acute pulmonary edema." It has been encountered only in patients with severe toxemia. Hypertension, albuminuria and edema, all of marked degree, were present in all cases for two or more weeks preceding the first seizure.

In our original report, the suggestion was made that the mechanisms of origin of the pulmonary edema in these cases and in eclampsia were similar or identical and that this mechanism is essentially left ventricular heart failure. It was also pointed out that a background of vascular hypertension is often found in toxemic patients who develop this symptom complex. However, six cases were reported in which cardiac asthma and acute pulmonary edema complicated simple acute preeclampsia without a background of cardiovascular or renal disease.

During the past two years we have had subsequent opportunity to observe a number of toxemic patients in whom this complication has developed. In this communication we present certain observations on the clinical nature and pathologic physiology of such attacks, as illustrated by several case histories. In contrast to the cases previously reported, these patients had backgrounds of some degree of hypertensive disease, although none have had attacks resembling paroxysmal dyspnea or cardiac asthma except during the latter half of pregnancy, when the superimposition of toxemia of pregnancy resulted in exaggeration of the hypertension with the appearance of generalized edema.

That the increase in hypertension accompanied by the appearance of marked albuminuria and edema in these patients indicated the superimposition of preeclampsia on hypertension, rather than renal insufficiency or progression of their vascular disease, is indicated by the observation that none of them had significant azotemia and all were able to concentrate urine normally. That we are justified in terming the condition preeclampsia is also indicated by the fact that, coincident with the attacks, these patients showed the marked sudden changes of hemoconcentration and other conditions found on laboratory examination which are characteristic of this disease. In one of these cases, after repeated severe attacks of cardiac asthma with acute pulmonary edema there developed severe headache, temporary amblyopia, torpor and marked rapid hemoconcentration following a typical eclamptic convulsion. We present this patient's history in some detail:

CASE 1.—K. C., aged 39, was admitted to the Boston Lying-in Hospital Nov. 3, 1937, in the twenty-ninth week of her eleventh pregnancy with the history of three severe attacks of paroxysmal dyspnea and manifestations of marked hypertension, albuminuria and edema.

The family history revealed that her mother and one sister had hypertension.

There was nothing in the past history to suggest glomerulonephritis or pyelonephritis. There had been ten previous pregnancies, of which the first four were entirely normal. The last six pregnancies had been complicated by mild asymptomatic hypertension without significant albuminuria or edema. The maximum blood pressure recorded was in the fifth pregnancy, when it was once found to be 160 systolic and 110 diastolic. The sixth pregnancy ended in spontaneous abortion, but all others ended in term deliveries of large live babies.

The patient has been examined between pregnancies three times in this clinic during the last seven years. At these examinations the blood pressure was found to be from 140 to 150 systolic and 100 diastolic. Except for slight obesity, there were no other abnormalities. At each examination the urine contained no albumin. Her subjective health had been excellent with no cardiovascular or renal symptoms, in spite of the fact that she did all the housework for a family of nine.

The last menstrual period began April 15, 1937. Except for a little more than usual nausea and vomiting during the second month, this pregnancy progressed asymptomatically up to the twenty-fourth week, when the patient first noticed edema involving the face, hands and feet. When the edema had persisted for about two weeks, she began to drink large amounts of water, up to twelve or more glasses a day, on the advice of a friend who was a nurse. Several days after the adoption of this policy she was awakened at 4 o'clock in the morning with a severe and frightening choking sensation. The attack was characterized by extreme orthopnea and dyspnea, cough and difficulty with expiration. "I had to sit up to get my breath. A wall seemed to come right up over my chest and I couldn't breathe. It seemed as if each breath would be my last." The acute distress lasted some two hours, during which time members of the family tried to persuade her to lie down, but she "had to sit up." She remained in bed for twenty-four hours, after which she resumed her duties about the house. The forcing of fluids was discontinued for about a week, because the patient was afraid to resume it, having associated it with her attack of cardiac asthma. However, at the insistence of her family and the nurse, the forcing of fluids was resumed. After several days there was a second attack, which came on while she was resting about one hour after dinner. This episode was essentially like the first one, but it was some five hours until the extreme dyspnea and orthopnea were gone. The next day the patient was up and about again. Indeed, she stated that she was afraid to go to bed or lie down. Five days later there was a third attack. This time she sat in a chair with her head resting on a table for the first hour. She found this position decidedly more comfortable. Next day she reported to the clinic for the first time.

The patient was large, well developed and dyspneic, with moderate generalized edema. There was no cyanosis, and the veins of the neck were not distended. The pulse rate was 100, the heart moderately enlarged and the rhythm normal and there was a systolic murmur over the precordium. The blood pressure was 230 systolic, 160 diastolic. Auscultation of the lungs revealed numerous crepitant rales at both bases, extending above the

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1. Teel, H. M.; Reid, D. E., and Hertig, A. T.: Cardiac Asthma and Acute Pulmonary Edema, Complications of Nonconvulsive Toxemia of Pregnancy, Surg., Gynec. & Obst. **64**: 39 (Jan.) 1937.

midscapular and midaxillary regions. The liver was neither enlarged nor tender, and the uterus was consistent in size with a scant seven months pregnancy. The urine showed 4 plus albumin.

The patient was admitted to the hospital and placed on a regimen of fluid restriction, and digitalization was begun. There was a mild attack of cardiac asthma the first night. Although she lost 6 pounds (2.7 Kg.) during the first twenty-four hours, rales persisted at the lung bases. On the second hospital day, a 7 foot x-ray plate of the chest showed the heart considerably enlarged in its transverse diameter and diminished radiance of both lung bases with haziness of the costophrenic angles.

The vital capacity, as determined on the second hospital day after subsidence of the acute seizure, was 1,700 cc.[2] Retinoscopy revealed blurring of the disk margins and patches of "cotton wool" exudate. The arteries were constricted and the veins overfilled, but there were no hemorrhages.

On the morning of the third hospital day, the patient awakened with severe frontal headache and blurred vision. The condition grew worse, and in the afternoon she became irrational. A lumbar puncture was done, and clear fluid under 300 cm. of water pressure was obtained. Withdrawal of 30 cc. reduced the pressure below 150 cm. of water.

Forty minutes following the lumbar puncture there was a typical eclamptic convulsion. Magnesium sulfate given intravenously resulted in prompt improvement, and repetition controlled the patient's irritability and symptoms. Forty-eight hours later labor was induced and a stillborn 2 pound 1 ounce infant (935 Gm.) was delivered spontaneously. Subsequent recovery was rapid; within three days the lungs were free from rales and the vital capacity had risen to 2,700 cc. At the time of her discharge from the hospital on the fourteenth postpartum day there was neither dyspnea nor orthopnea, the blood pressure was 160/100, the urine contained 1 plus albumin, and the vital capacity was 2,850 cc.

This patient has been seen several times during the six months since delivery. She has no cardiac, vascular or renal symptoms and has resumed all the housework for a family of nine. The blood pressure is 140 systolic, 90 diastolic and the urine is free from albumin. Repetition of the 7 foot x-ray plate of the heart shows no enlargement in the transverse diameter, although there is a slight aortic knob.

The maximum value for nonprotein nitrogen in the blood was 40 mg. per hundred cubic centimeters ante partum and 43 mg. one week post partum. Blood uric acid ante partum was 4 mg. per hundred cubic centimeters. Of considerable interest is a sudden change in hemoconcentration, which occurred at the time of the convulsion. The hematocrit reading a few hours before the convulsion was 29.99 per cent. Shortly after the convulsion the hematocrit reading was 39.50 per cent. At the time of her discharge from the hospital fourteen days post partum the hematocrit and hemoglobin values were respectively 34.37 per cent and 10.4 Gm. We have repeatedly observed these sudden marked shifts in hemoconcentration in other patients with eclampsia, particularly when complicated by pulmonary edema.

This patient's history is presented to illustrate the occurrence of severe cardiac asthma with acute pulmonary edema as a complication of preeclampsia superimposed on mild asymptomatic hypertensive disease. That the marked increase in blood pressure, edema and albuminuria were fairly interpreted as preeclampsia was confirmed by the facts that the patient subsequently had a typical eclamptic convulsion without evidence of renal failure and that she recovered promptly following termination of the pregnancy. We would emphasize that the patient has never suffered from cardiac symptoms and has never had an attack suggestive of nocturnal or paroxysmal dyspnea before or since the pregnancy described.

The specificity of pregnancy toxemia in causing cardiac asthma with acute pulmonary edema in a previously and subsequently well compensated hypertensive patient is better illustrated by the following case:

CASE 2.—F. M., aged 38, was admitted to the hospital in the fifth month of her ninth pregnancy because of severe hypertension, edema and history of recurrent attacks of paroxysmal dyspnea for two weeks.

The patient was known to have had an elevated blood pressure for at least six years. Her last pregnancy eighteen months before had been terminated in the sixth month in another hospital because of a severe toxemia of pregnancy complicated by seizures of dyspnea and orthopnea. Recorded conditions prior to termination of the pregnancy were essentially massive peripheral edema, numerous crepitant rales, a blood pressure of 260 systolic, 140 diastolic, and 4 plus albumin in the urine. Following termination of the pregnancy there was prompt improvement with disappearance of dyspnea, albuminuria and edema and decrease in blood pressure.

At repeated examinations during the eighteen months between this pregnancy and the present one, the blood pressure ranged from 180 to over 200 mm. of mercury systolic, but there was no edema, and there had been no further seizures of dyspnea and no other symptoms referable to the heart.

The present pregnancy had progressed without incident until two or three weeks before examination, when generalized peripheral edema appeared. Some days later the patient began to have recurrent seizures typical of cardiac asthma with cough productive of frothy sputum.

Examination revealed essentially peripheral edema, dyspnea, cardiac enlargement, numerous crepitant rales over the lower lobes of both lungs and a blood pressure of 240 systolic, 160 diastolic. The urine did not contain albumin.

The patient was placed on a regimen of restricted fluid intake and digitalized, and the pregnancy was terminated by abdominal hysterotomy and sterilization. There was rapid marked improvement with disappearance of peripheral edema, dyspnea and signs of pulmonary edema and decrease in blood pressure. The patient was discharged seventeen days post partum with no signs or symptoms of cardiac decompensation.

The patient has been followed for eighteen months since delivery. The blood pressure ranges from 180/110 to 240/120 and she has considerable headache, but the lung bases have remained clear and she has had no recurrence of the seizures of paroxysmal dyspnea.

This patient is the only one in our series without marked albuminuria who has had typical cardiac asthma appear for the first time as a complication of toxemia of pregnancy. It should be added that her antecedent hypertensive disease was the most marked of any patient in the series. The point of particular interest to us is that, although she is known to have had marked hypertension for six years, she has never suffered from seizures of cardiac asthma or pulmonary edema except as described in the last two pregnancies, when marked increase in blood pressure, edema and (in the first pregnancy) albuminuria indicated the superimposition of preeclampsia.

The third case illustrates the futility of prolonged expectant treatment when attacks of cardiac asthma with acute pulmonary edema have occurred in the course of severe toxemia of pregnancy.

CASE 3.—M. B., a quintipara aged 37, was transferred from another hospital to this clinic in the thirty-sixth week of pregnancy because of toxemia complicated by marked choking sensations, dyspnea and orthopnea.

2. We have determined the vital capacity on a number of these patients with impending cardiac asthma or between attacks. The procedure is always distressing to them, and the first effort invariably gives the maximum reading. Following the procedure, signs of moisture in the lungs are usually increased. In one subject an immediate seizure of cardiac asthma with acute pulmonary edema followed determination of the vital capacity.

She was known to have had some degree of toxemia with her last two pregnancies. Her family physician knew that her blood pressure was definitely above normal early in the present pregnancy. In the seventh month of pregnancy there was a definite increase in the blood pressure, with the appearance of edema of the lower extremities and albuminuria. Simultaneously the patient began to have attacks of nocturnal dyspnea and was obliged to lead a bed and chair existence. On admission to a private hospital two weeks later the blood pressure was 200 plus systolic and from 100 to 120 diastolic, and the urine showed 4 plus albumin. Over a period of two weeks she was observed by her physician to have several attacks of nocturnal dyspnea during which the chest was full of fine and coarse rales. She was digitalized.

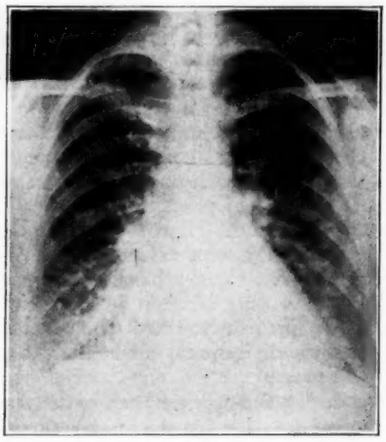

Fig. 1 (case 4).—Degree of pulmonary congestion and cardiac dilatation at the height of an attack of "cardiac asthma."

On admission to this hospital, physical examination revealed the following: The patient was frail, with marked orthopnea and cyanosis. There was only a slight degree of peripheral edema. The blood pressure was 220/140 and there was marked sclerosis of the retinal vessels. The heart was enlarged and the lungs were full of rales. The vital capacity was 1,500 cc., and the hematocrit reading was 42.59.

Some twenty-four hours after admission (during which interval several attacks of paroxysmal dyspnea had been observed), labor was induced by artificial rupture of the membranes. Several hours later she delivered a living baby normally. Her condition was only fair for several days post partum. There was one rather mild attack of pulmonary edema on the tenth postpartum day. However, two weeks following delivery the vital capacity had risen to 2,280 cc. and the hematocrit reading had decreased to 33.50.[3] She was discharged much improved with the blood pressure still 190/110.

She has been observed for two years following delivery. She has had no subsequent attacks of paroxysmal dyspnea and she is able to do light housework with no discomfort. The blood pressure at the last observation was 220/114. The urine is free from albumin. She has been sterilized by x-rays.

Although this patient was reasonably well treated by bed rest, restriction of fluid intake and digitalization, the attacks persisted and tended to become worse during the three weeks until the pregnancy was terminated. We have had similar experience with other patients observed and treated for shorter periods.

The final history to be reported here is that of a primipara about whose blood pressure we have no information prior to or early in pregnancy. From her physical examination at the time of the attack and her subsequent course we suspect that there was antecedent hypertension.

CASE 4.—D. W., a primigravida aged 33, entered the hospital for emergency treatment in the thirty-eighth week of pregnancy. Her complaints were dyspnea, orthopnea and swelling of the lower extremities. The past and family histories were noncontributory. It is known that at examination six years previously the urine contained no albumin, the sediment was negative and the specific gravity was 1.030.

The patient was large and edematous, weighing 214 pounds (97 Kg.), and had moderate cyanosis. The blood pressure was 194/118. Auscultation of the chest revealed fine to coarse rales throughout. While the patient was being turned to facilitate examination, a severe attack of acute pulmonary edema developed. Several hours later the vital capacity was found to be 1,820 cc. Immediately following this procedure the patient was seized with a second similar attack of orthopnea and dyspnea, with marked exacerbation of pulmonary edema. A 7 foot x-ray plate of the heart taken at this time and repeated nine weeks post partum indicates the degree of pulmonary edema and cardiac dilatation associated with these episodes of acute pulmonary edema (figs. 1 and 2).

The urine contained 4 plus albumin. There were numerous white blood cells, occasional red blood cells and granular casts in the sediment. Chemical examination of the blood was negative except for a total protein value of 5.77 Gm. per hundred cubic centimeters.

The patient was given morphine in liberal doses. Fluids were restricted and she was rapidly digitalized. She was delivered by cesarean section twenty-four hours later. The baby weighed 5 pounds 5 ounces (2,410 Gm.) and survived. The mother's condition improved rapidly. There were no subsequent attacks of pulmonary edema, and one week later her chest was clear. The vital capacity two weeks post partum had risen to 2,540 cc.

The patient has been followed for two years since delivery and has shown a progressive increase in blood pressure with albuminuria. Only within the past two months have attacks of paroxysmal dyspnea recurred, and subjectively they are of the same character as those which the patient experienced for the first time when pregnant.

Studies of the vital capacities and hemodynamics of these patients show changes similar to those reported in classic cardiac asthma. All showed a marked decrease in the vital capacity, which increased rapidly with clinical improvement following delivery. Changes in the cell volume as determined by hematocrit readings indicate marked hemoconcentration associated with the seizures. Peripheral venous pressure and circulation time[4] were found to be within the upper limits of normal.

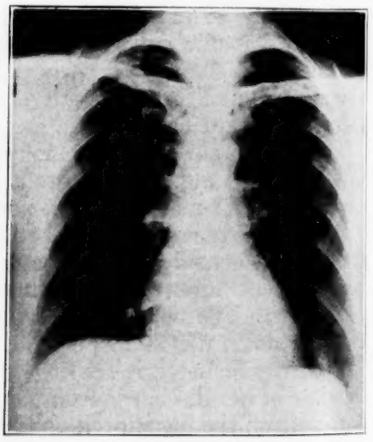

Fig. 2 (case 4).—Appearance nine weeks after delivery.

Although, as we have pointed out, cardiac asthma and acute pulmonary edema may complicate simple acute preclampsia in patients without a background of hypertensive or renal disease, this symptom complex is more commonly encountered when preeclampsia is superimposed on such a background.

Our previous report dealt primarily with the complication in patients with simple preeclampsia. In this study, on the other hand, some degree of vascular hypertension formed a background for the preeclampsia in all cases.

We believe that general recognition of this complication of nonconvulsive toxemia is important for two

3. The cell volume two weeks post partum (33.50 per cent) is considerably lower than that obtained during the seizures of dyspnea before delivery (42.59 per cent). Ordinarily the cell volume increases considerably following delivery. This marked reversal of the usual trend indicates that there was considerable hemoconcentration associated with the seizures of cardiac asthma.

4. Venous pressure was determined by the method of Moritz and von Tabora (Ueber eine Methode, beim Menschen den Druck in oberflachlichen Venen exakt zu bestimmen, Deutsches Arch. f. klin. Med. **98**: 475, 1910) and the circulation time by the method of Robb and Weiss (A Method for the Measurement of the Velocity of the Pulmonary and Peripheral Venous Blood Flow in Man, Am. Heart J. **8**: 650 [June] 1933).

reasons: First, its frequency is greater than is generally appreciated.[5] It is one of the more common immediate causes of death from nonconvulsive toxemia. Its early recognition combined with suitable therapy will aid in reducing the mortality in nonconvulsive toxemia. Second, consideration of the probable similarity in the mechanisms of origin of cardiac asthma with acute pulmonary edema in the nonconvulsive toxemic patient and acute pulmonary edema in the eclamptic should lead to more rational and effective therapeutic protection of the heart in eclampsia.

We have found no cause to modify our original view that the immediate cause of the symptom complex is left ventricular heart failure. We would point out that, in general, marked degrees of acute pulmonary edema more often accompany the seizures in patients with preeclampsia than in nonpregnant hypertensive patients with cardiac asthma. In addition, in most instances signs of pulmonary edema persist between attacks until delivery is accomplished. The increased capillary permeability, edema and low serum proteins which are characteristic of preeclampsia would appear to offer a reasonable explanation for this difference.

Immediate treatment of the acute seizures involves the use of morphine in large doses, and venesection or peripheral venostasis if pulmonary edema is marked. After a brief period, temporary improvement is the rule. However, from knowledge of the clinical courses of some fifteen cases we have come to the conclusion that prolonged expectant therapy, even including suitable cardiac measures, is undesirable. Once the patient has had such attacks, the improvement has been temporary and recurrence of attacks is the rule until the patient is delivered. For this reason termination of the pregnancy by suitable means is desirable when the patient has been prepared by preliminary fluid restriction and full digitalization. This should be a matter of from twelve hours to, at the most, three or four days.

Again, it must be emphasized that the immediate prognosis must be guarded in undelivered patients in whom this symptom complex develops. Death may occur during the attack. However, it is equally important to realize that, once such patients are successfully delivered, the outlook is not a dismal one. The occurrence of such attacks in the presence of pregnancy cannot be regarded as evidence of the rapidly progressive vascular disease which it denotes in the nonpregnant, but rather of a temporary removable burden to the vascular system produced by the toxemia of pregnancy. In our experience these patients, with one exception, have continued to enjoy relatively normal lives without recurrence of the attacks described.

SUMMARY AND CONCLUSIONS

Nonconvulsive toxemia of pregnancy characterized by marked hypertension, albumin and edema is occasionally complicated by sudden left ventricular heart failure, as indicated by seizures of cardiac asthma with acute pulmonary edema. Both patients with previously normal vascular and renal systems and with antecedent hypertension may have such attacks, although they are more common in the latter. Once such attacks have occurred, lasting improvement is not to be expected until the pregnancy is terminated.

Therapy consists in large doses of morphine with venesection, or in peripheral venostasis when indicated by severe pulmonary edema, followed by rapid digitalization and dehydration and delivery within a few days.

The immediate prognosis is grave, but if delivery is survived the ultimate prognosis is good.

We believe that the distressing pulmonary edema often encountered in severe and fatal eclampsia is also a result of acute left ventricular heart failure. For this reason, rapid full digitalization of all eclampsia patients is indicated.

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5. In a recent report of a fatal case of nonconvulsive pregnancy toxemia by Harrison and his associates, acute pulmonary edema would appear to have been the immediate cause of death (Harrison, D. A., Jr.; Shelton, J. H., and Carrithers, C. M.: Postmortem Cesarean Section in Twin Pregnancy, with Delivery of Two Living Babies, J. A. M. A. **110**: 2066 [June 18] 1938).

THE TREATMENT OF PULMONARY TUBERCULOSIS WITH SULFAPYRIDINE

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The encouraging results of sulfanilamide therapy in infections caused by the hemolytic streptococcus, the meningococcus, the colon bacillus and the gonococcus, and the more recent results of sulfapyridine therapy in pneumococcic pneumonia have made us hopeful that eventually some such chemotherapeutic agent might be discovered which would influence the course of pulmonary tuberculosis in a favorable manner. The reports from England as well as those from America have indicated that sulfapyridine is an impressive drug, powerful in effecting a cure in pneumonia yet relatively nontoxic as far as permanent harm or death of the patient is concerned. We felt that this drug might have some bactericidal effect on the tubercle bacillus, and since there had been no reports on its use in treating tuberculosis we decided in December 1938 on the investigation which we are now reporting. Recently there has appeared in the literature a paper on the effects of sulfapyridine on experimental tuberculosis in the guinea pig by Feldman and Hinshaw.[1] These observers report that in their investigation sulfapyridine exerted a definite and striking modification and retardation of the expected course of experimentally induced disease. The most impressive effects were those related to the spleen. The spleens of the untreated animals presented without exception severe progressive tuberculosis, while those in the treated animals, with one exception, showed no gross signs of tuberculosis.

For the study of the action of sulfapyridine on the clinical course of pulmonary tuberculosis in human beings we agreed that certain requirements must be met in the selection of our cases. In the first place we decided that only cases presenting exudative processes with little tissue defect (cavity formation) would be used, since, it was argued, if these cases did not respond to the drug certainly it could be assumed that long standing cases of fibrocavernous phthisis would not respond. Secondly, it seemed wise to use only patients whose sputums were positive for tubercle bacilli at the time so that there would be no doubt in our minds of the diagnosis. It was further decided that this would

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The sulfapyridine used in this work was supplied by Merck & Co., Inc.

1. Feldman, W. H., and Hinshaw, H. C.: Proc. Staff Meet., Mayo Clin. **14**: 174 (March 15) 1938.

be a short period study to ascertain, if possible, the effects if any on the pulmonary process.

As the average adult pneumonia patient receives from 20 to 25 Gm. of sulfapyridine to effect a cure, it appeared reasonable to assume that in treating patients with pulmonary tuberculosis we should use from two to four times this amount over a longer period of time.

No attempt was made in our study to determine the blood level (estimates of sulfapyridine concentration in the blood).

REPORT OF CASES

CASE 1.—E. H., a man aged 49, a Russian, was admitted to Bellevue Hospital Dec. 30, 1938, with a history of cough of two months' duration productive of 150 cc. of thick gray, nonfoul sputum daily. At the onset of his illness there had been a hemoptysis of one half ounce (15 cc.) of blood, followed by streaking for several days. He had noticed some dyspnea and had had night sweats for several weeks. Hoarseness had been present for about the same period. He had had no chills and apparently no fever. His past history revealed that he had been a heavy drinker for the last five years. Fifteen years before he had had a primary syphilitic lesion for which he had received antisyphilitic therapy.

Examination of the chest revealed bilateral apical dulness, greater on the right, with bronchovesicular breath sounds over both apexes. No rales were heard. The initial roentgenogram of the chest (Jan. 1, 1939) showed a mixed type process, but predominantly exudative, involving to some degree all the right lung but especially the upper half with a nodular distribution. No cavities were visible. The left lung showed a bronchiogenic spread to the first and second intercostal spaces.

The laboratory observations were as follows: The urine was normal. The Wassermann reaction of the blood was negative. Concentrated sputum was positive for tubercle bacilli.

A blood count Jan. 2, 1939, showed hemoglobin 87 per cent, red cells 4,910,000, white cells 7,150, polymorphonuclear leukocytes 74 per cent, lymphocytes 25 per cent and monocytes 1 per cent. On January 5 it showed white cells 11,200, polymorphonuclear leukocytes 72 per cent, lymphocytes 24 per cent and monocytes 4 per cent.

The patient was started on sulfapyridine 1 Gm. every four hours. He received a total of 57 Gm. in fourteen days.

After the second and third doses of the drug the patient complained of epigastric "burning" and nausea but there was no vomiting. This disappeared as soon as the drug was withdrawn and did not return when the drug was resumed two days later, although he did have slight dizziness. The temperature range was between 98 and 100.6 F. (rectally) during his stay in the hospital and did not appear to be affected by the drug. February 7 a second roentgenogram of the chest revealed no clearing of the tuberculous process. A third and final roentgenogram of the chest on February 27 revealed no essential change in the tuberculous process. Sputum examination continued to be positive for tubercle bacilli. The patient showed no improvement and was discharged to a sanatorium February 28, having been observed for two months.

CASE 2.—F. B., a man aged 27, a Filipino, was admitted to Bellevue Hospital Jan. 14, 1939, having been transferred from Mount Sinai Hospital. He gave a history of sudden onset of chills, fever, sweats and marked weakness two weeks before admission. There was slight cough with scanty white sputum. He had lost 15 pounds (6.8 Kg.) in the last few weeks. Recently he had noticed a tender swollen gland in the lower right anterior cervical region, which had been aspirated at Mount Sinai Hospital and culture of the pus reported positive for tubercle bacilli. The past history was irrelevant.

On examination the patient was thin and acutely ill, with rapid respirations, hot moist skin, a temperature of 105 F. (rectally) and pulse 130. The chest appeared normal except for harsh breath sounds throughout. No rales were heard. The spleen was palpable.

The initial roentgenogram of the chest January 14 revealed the finely nodular symmetrical infiltration evenly distributed from apexes to bases so characteristic of hematogenous miliary tuberculosis. The laboratory observations were as follows: The urine showed a trace of albumin. The Wassermann reaction of the blood was negative. Concentrated sputum was negative for tubercle bacilli.

A blood count January 17 showed hemoglobin 65 per cent, red cells 2,970,000, white cells 11,300, polymorphonuclear leukocytes 80 per cent, lymphocytes 11 per cent and monocytes 9 per cent. On January 18 it showed white cells 10,800, polymorphonuclear leukocytes 70 per cent, lymphocytes 26 per cent, monocytes 3 per cent and eosinophils 1 per cent. On January 23 it showed white cells 11,200, polymorphonuclear leukocytes 68 per cent and lymphocytes 32 per cent.

The patient was given sulfapyridine 1 Gm. every four hours. He received a total of 18 Gm. in five days.

Twelve hours after sulfapyridine was started, the temperature dropped two degrees and the pulse was slightly lower. On the second day after sulfapyridine administration the patient complained of abdominal cramps and nausea. Shortly after this vomiting set in, and after the patient had received only 18 Gm. of the drug it was necessary to discontinue it. From then on the course of the disease was rapidly progressive to a fatal termination. Death occurred January 28, on the fourteenth day of his stay in the hospital. A roentgenogram of the chest taken the day before his death (January 27) revealed the process in the lungs to be more extensive, especially at the bases.

On postmortem examination hematogenous miliary tuberculosis was revealed in the lungs, the heart, the serous membranes, the spleen, the liver, the adrenals and the kidneys.

CASE 3.—S. M., a man aged 38, an Italian, was admitted to Bellevue Hospital Dec. 29, 1938, with the history of a rather sudden onset of chest cold three weeks before admission. He expectorated 1 ounce (30 cc.) of mucopurulent sputum daily and complained of right anterior chest pain of two weeks' duration and left anterior chest pain of three weeks' duration. There had been weakness and fatigue for two weeks, some anorexia and the loss of 5 pounds (2.3 Kg.) in weight. The past history was irrelevant.

Examination of the chest revealed dulness on the left from the apex to the fourth rib anteriorly and the fourth thoracic spine posteriorly, with a patch of medium moist rales and increased breath sounds in the posterior axillary line at the level of the seventh thoracic vertebra. The right side of the chest showed dulness to the fourth rib anteriorly and the fourth thoracic spine posteriorly with amphoric breathing at the apex. There was bronchovesicular breathing on the right from the infraclavicular region to the fifth rib and posteriorly to the sixth thoracic spine with medium moist rales over this area. The rales at the right apex had a consonating quality.

The initial roentgenogram of the chest December 30 showed a diffuse exudative infiltration involving the right upper lobe with multiple cavitations in the apical and subapical regions. The lower half of the right lung showed a diffuse, nondense, finely nodular infiltration. The left lung showed an exudative nodular infiltration below the first rib, particularly in the periphery of the second and third intercostal spaces.

The laboratory observations were as follows: The urine was normal except for a very faint trace of albumin. The Wassermann reaction of the blood was negative. Concentrated sputum was positive for tubercle bacilli. A blood count Jan. 2, 1939, showed white cells 8,800, polymorphonuclear leukocytes 76 per cent and lymphocytes 24 per cent.

The patient was given sulfapyridine 1 Gm. every four hours, but after receiving only 9 Gm. of the drug in three days he became so nauseated that he insisted on leaving the hospital.

CASE 4.—W. M., a man aged 44, Polish, admitted to Bellevue Hospital Jan. 9, 1939, had for seven months had a troublesome cough which had become productive of 1 ounce (30 cc.) of mucopurulent sputum daily in the last three weeks. There had been no hemoptysis. Hoarseness had been present for five weeks with slight pain on swallowing. The past history was irrelevant.

Examination of the chest revealed dulness in the infraclavicular areas, especially on the right side, with some degree of dulness over most of the right side of the chest. There were bronchovesicular breath sounds over most of the chest, front and back, with rales of all types. Consonating rales were heard in the right infraclavicular area.

The initial roentgenogram of the chest January 11 revealed extensive bilateral tuberculosis, chiefly exudative, with a pneumonic process involving the right upper lobe and a 5 by 6 cm. cavity at the right apex. There was a typical bronchiogenic miliary spread to the bases.

The laboratory observations were as follows: The urine was normal. The Wassermann reaction of the blood was negative. Concentrated sputum was positive for tubercle bacilli.

A blood count January 13 showed hemoglobin 85 per cent, red cells 4,980,000 and white cells 12,150.

January 14 it showed red cells 4,730,000, white cells 14,850, polymorphonuclear leukocytes 91 per cent and lymphocytes 9 per cent.

January 15, red cells 4,940,000, white cells 11,250, polymorphonuclear leukocytes 88 per cent and lymphocytes 12 per cent.

January 16, white cells 10,550, polymorphonuclear leukocytes 85 per cent and lymphocytes 15 per cent.

January 17, white cells 9,050, polymorphonuclear leukocytes 86 per cent and lymphocytes 22 per cent.

January 18, white cells 10,200, polymorphonuclear leukocytes 78 per cent and lymphocytes 22 per cent.

January 19, white cells 7,800, polymorphonuclear leukocytes 65 per cent and lymphocytes 35 per cent.

January 21, red cells 4,500,000 and white cells 10,000.

January 28, white cells 11,200, polymorphonuclear leukocytes 81 per cent and lymphocytes 19 per cent.

The patient was given sulfapyridine 1 Gm. every four hours and received a total of 108 Gm. in twenty-five days. After the first slight epigastric "burning," which was relieved by sodium bicarbonate, he had no ill effects from the drug in any way that we were able to determine. After receiving 6 Gm. of the drug his temperature fell from 103.6 to 101.6 F. and after 12 Gm. of the drug became normal. In spite of the continuance of the drug, however, the temperature from then on fluctuated between 101 and 101.6 F. A second roentgenogram of the chest January 26 showed that there was some spread of the tuberculous process at the bases; otherwise there was no change from the film taken January 11. Subsequent sputum tests were positive for tubercle bacilli. After a total of 108 Gm. of sulfapyridine had been given it was apparent from signs, symptoms, x-ray examinations and the sputum that the patient had not been benefited by the drug. He now appeared weaker and was transferred February 15 to Seton Hospital, where he died of tuberculosis March 13.

CASE 5.—C. V., a Puerto Rican woman aged 24, was admitted to Bellevue Hospital March 27, 1939, with the history of a productive cough of two weeks' duration. The sputum was not foul. There had been no hemoptysis. She had lately noticed sweats at night and thought that she had been feverish. The past history was irrelevant.

Examination of the chest revealed dulness and loud bronchial breathing over the upper half of the right lung with medium moist and a few crepitant rales over this area. Aside from some harsh breath sounds at the apex the left lung appeared clear.

The initial roentgenogram of the chest, March 28, revealed a dense pneumonic process from the right apex to the fourth rib, the base of the shadow being outlined by the interlobar fissure. There was slight rarefaction in the first intercostal space. The left lung showed an exudative infiltration in the second and third intercostal spaces.

The laboratory observations were as follows: The urine was normal. The Wassermann reaction of the blood was negative. Initial sputum was negative for tubercle bacilli but two concentrated specimens of sputum taken soon after this were positive, as were all subsequent specimens.

A blood count March 31 showed hemoglobin 60 per cent, white cells 12,160, polymorphonuclear leukocytes 89 per cent and lymphocytes 11 per cent.

On May 3 it showed hemoglobin 79 per cent, red cells 4,840,000, white cells 5,880, polymorphonuclear leukocytes 79 per cent and lymphocytes 21 per cent.

On June 2 it showed hemoglobin 64 per cent, red cells 4,130,000, white cells 10,800, polymorphonuclear leukocytes 82 per cent and lymphocytes 18 per cent.

The patient was given sulfapyridine 1 Gm. every four hours with no apparent effect on her temperature, which ranged between 101 and 103 F. After five days of sulfapyridine therapy the patient, having received a total of 19 Gm., complained of pain and tenderness over the region of the left kidney and she began to have hematuria. Sulfapyridine was stopped and soon the hematuria did likewise. She continued to have pain in the left costovertebral angle, and an intravenous pyelogram was made which showed incomplete filling of the pelvis of the left kidney. Cystoscopy was carried out, revealing an obstruction of the left ureter near the kidney pelvis. With considerable difficulty a number 5 catheter was finally passed to the kidney pelvis, resulting in a rapid flow of clear amber urine. Following this procedure the pain and tenderness in the left kidney region cleared up almost immediately and she had no more trouble in this respect. A second intravenous pyelogram after this cystoscopic treatment showed a normal functioning left kidney. It was thought that the ureteral obstruction was due to acetylsulfapyridine crystals settling out in the kidney pelvis and passing into the ureter, forming an impaction.

A second roentgenogram of the chest April 17 revealed a spread of the tuberculous process in the left second intercostal space and likewise to the right base. A roentgenogram of the chest May 15 showed that the process in the left lung had spread considerably since her previous examination. A roentgenogram of the chest May 26 showed that both entire lung fields were almost completely involved with the tuberculous process. The patient is still in the hospital as this paper is being written, and apparently within a few weeks this case will terminate fatally.

CASE 6.—C. S., a white woman aged 20, was admitted to Bellevue Hospital March 24, 1939, with a history of pleurisy on the left side one year before, following which she was apparently well until September 1938, when she began to cough and expectorated half a cupful of nonfoul sputum daily. She had noticed some loss of weight, some weakness and dyspnea in the last two months. The past history, prior to her pleurisy one year before, had been essentially irrelevant.

On examination the patient appeared thin and chronically ill. She had "shotty" cervical glands. The trachea appeared to deviate slightly to the right. There was right apical dulness, and medium moist rales could be heard from the right apex to the fourth thoracic spine posteriorly. The left side of the chest showed dulness from the apex to the fourth rib anteriorly and to the fourth thoracic vertebra posteriorly. Over this area there were bronchovesicular breathing and medium moist and a few coarse rales.

The initial roentgenogram of the chest, March 25, revealed a mixed type process, predominantly exudative however, in the right first intercostal space and below the fifth rib. The left lung showed an exudative infiltration and small cavitation in the second intercostal space and some involvement of the left base.

The laboratory observations were as follows: The urine was normal. The Wassermann reaction of the blood was negative. Concentrated sputum was positive for tubercle bacilli.

A blood count April 6 showed hemoglobin 85 per cent, red cells 4,950,000, white cells 7,400, polymorphonuclear leukocytes 70 per cent, lymphocytes 24 per cent, monocytes 4 per cent and basophils 2 per cent.

April 16, red cells 5,400,000, white cells 8,450, polymorphonuclear leukocytes 74 per cent, lymphocytes 11 per cent, monocytes 7 per cent, transitionals 7 per cent and basophils 1 per cent.

April 22, red cells 5,090,000, white cells 9,500, polymorphonuclear leukocytes 85 per cent, lymphocytes 12 per cent, monocytes 3 per cent and basophils 1 per cent.

April 27, white cells 8,600, polymorphonuclear leukocytes 72 per cent and lymphocytes 9 per cent.

The patient was given sulfapyridine 1 Gm. every four hours; she received 103 Gm. in twenty-three days.

After receiving sulfapyridine for two days she became nauseated and vomited and the drug was withdrawn for twenty-four hours. It was resumed without a return of her vomiting and with only slight nausea at times.

A roentgenogram of the chest taken April 7 showed no essential change from the film of March 25. One taken April 15 showed no essential change from the previous plates, but that taken April 28 showed considerable spread of the process in the left lower lobe. The sputum was still positive and the patient appeared to be going downhill rather rapidly. It was felt that in order to save the patient's life, if indeed this was possible, it was expedient to stop sulfapyridine, which had apparently done her no good after 103 Gm., and collapse the left lung at once. Accordingly this was done.

A roentgenogram May 13 showed approximately 20 per cent collapse of the left lung; the right lung showing no change. A roentgenogram of the chest May 31 showed 60 per cent collapse of the left lung with closure of the cavity in the second intercostal space. For the first time the contralateral lung showed some clearing. Although the sputum was still positive, the patient appeared better.

CASE 7.—F. S., an Irishman aged 33, was admitted to Bellevue Hospital March 22, 1939. He had been discharged from the Raybrook Sanatorium for Tuberculosis six years previously as having arrested pulmonary tuberculosis. Six months before admission to Bellevue a cough had developed productive of a cupful of mucoid sputum daily. During the last few months he had lost 18 pounds (8 Kg.) and had night sweats. He entered the hospital because of recent onset of pain in the left anterior part of the chest, intensified by coughing and deep inspiration. His temperature on admission was 102. F.

Examination of the chest showed a respiratory lag on the left. There was tubular breathing with increased whispered and spoken voice from the second to the fourth rib on the left between the anterior and midaxillary lines. Over this area there were dulness and many fine rales. The right side of the chest showed a few scattered fine rales throughout.

An initial roentgenogram of the chest March 23 revealed a fine infiltration throughout the right lung with thickening of the pleura. The left lung showed some light infiltration at the apex and dense pneumonic infiltration from the second to the fifth rib.

The laboratory observations were as follows: The urine was normal. The Wassermann reaction of the blood was negative. Initial sputum was positive for tubercle bacilli. Sputum culture showed type V pneumococcus.

A blood count March 23 showed hemoglobin 100 per cent, red cells 3,290,000, white cells 15,920, polymorphonuclear leukocytes 86 per cent and lymphocytes 14 per cent. March 29 it showed white cells 8,090, polymorphonuclear leukocytes 77 per cent, lymphocytes 19 per cent and monocytes 4 per cent.

The patient was given sulfapyridine 1 Gm. every four hours. The temperature, which on admission had been 102 F., fell to 99 within forty-eight hours of starting sulfapyridine therapy. The patient became so nauseated and vomited so much that after taking 5 Gm. of the drug it was discontinued. A roentgenogram of the chest April 1 revealed some slight clearing of the pneumonic area in the left lung. The process in the right lung remained the same. Roentgenograms of the chest taken April 11, April 19 and May 4 showed progressive clearing of the pneumonic process in the left lung, with no change in the tuberculous process on the right.

It was believed that we were dealing with a case of pulmonary tuberculosis in which type V pneumococcus pneumonia of the left upper lobe had developed. This pneumonia cleared under sulfapyridine therapy but the tuberculosis was not affected. In this case even as little as 5 Gm. of the drug appeared to have cleared the pneumococcic infection.

SUMMARY AND COMMENT

Seven patients who had been diagnosed as having pulmonary tuberculosis were treated with sulfapyridine. Patient 2 had acute generalized miliary tuberculosis, which was proved at autopsy, and was the only patient who had a negative sputum. He was in a moribund condition when he arrived at the hospital. We do not feel that sulfapyridine affected his disease in any way nor do we believe that it contributed to his death. Patient 4 received the largest total amount of the drug, 108 Gm., and patient 7 received the smallest, 5 Gm. Hematuria and pain and tenderness developed in case 5 in the region of the left kidney after 19 Gm. of the drug had been given. An intravenous pyelogram followed by cystoscopic examination revealed an obstruction in the upper portion of the left ureter near the kidney pelvis. With considerable difficulty a catheter was passed to the left kidney pelvis and the obstruction was relieved. It was thought that this obstruction was due to the formation of ureteral stone or impaction from the settling out in the kidney pelvis of acetylsulfapyridine crystals.

Nausea and vomiting were the two most common toxic manifestations in our series, the former occurring in five of the seven cases, the latter in three. In three cases it was necessary to withdraw the drug permanently because of these symptoms. In one case it was necessary to withdraw the drug because of hematuria and ureteral obstruction. Two patients in this series have died of their disease. Patient 6, after 103 Gm., was showing such rapid spread of her pulmonary tuberculosis that her left lung was collapsed, following which she improved somewhat.

CONCLUSIONS

Seven patients with active pulmonary tuberculosis, one with acute generalized miliary tuberculosis, were treated with sulfapyridine. The object of our study was to ascertain the immediate effects of the drug on the tuberculosis over a relatively short period of time. Under the conditions described, no evidence was obtained to indicate that sulfapyridine influenced the course of the tuberculosis in these cases.

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THECA CELL TUMORS OF THE OVARY

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Solid ovarian tumors, especially those producing endocrine changes, have been the subject of much discussion and investigation both by the pathologist and by the gynecologist during the past few years. Robert Meyer's [1] work, reported in 1931, was probably the spark that first aroused interest in America. In this publication he described the dysgerminoma ovarii, the granulosa cell tumor and the arrhenoblastoma. Later numerous reports of these tumor types appeared in the literature at frequent intervals, as did also reports of Brenner cell tumors; Bland and Goldstein [2] reviewed the literature and collected sixty cases of the latter type of tumor in 1935. Loeffler and Priesel [3] in 1932 recorded six cases of ovarian tumors, which they termed "fibroma theca cellulari xanthomatodes ovarii," and in 1934 the same authors [4] reported four additional cases of this type. In the same year Melnick and Kanter [5] reported two similar cases, the first to appear in the American literature, for which they adopted the

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1. Meyer, Robert: Am. J. Obst. & Gynec. **22**: 697 (Nov.) 1931.
2. Bland, P. B., and Goldstein, Leopold: Surg., Gynec. & Obst. **61**: 250-266 (Aug.) 1935.
3. Loeffler, E., and Priesel, A.: Beitr. z. path. Anat. u. z. allg. Path. **90**: 199, 1932.
4. Loeffler, E., and Priesel, A.: Wien. med. Wchnschr. **84**: 400 (April 7) 1934.
5. Melnick, P. J., and Kanter, A. E.: Am. J. Obst. & Gynec. **27**: 41 (Jan.) 1934.

term "theca cell tumors of the ovary." Geist,[6] in a series of papers, reported a large number of tumors which clinically simulated granulosa cell tumors of the ovary and pathologically resembled fibromas of the same organ. He proved by an extensive study of his cases, which embraced clinical, microscopic, chemical and biologic methods, that although theca cell tumors simulate granulosa cell tumors clinically and fibromas of the ovary microscopically they are a definite clinical entity.

To date only twenty-four cases of theca cell tumors have been reported in the literature, and to this number we add two cases which have come under our observation during the past year.

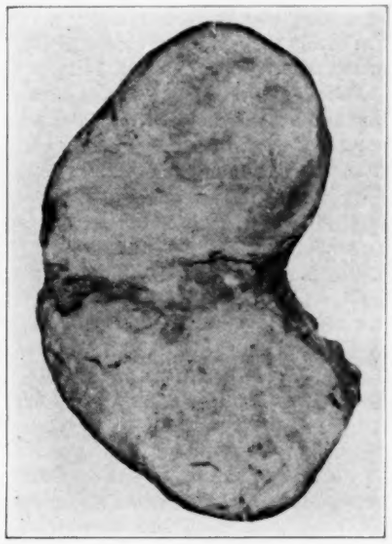

Fig. 1 (case 1).—Cut surface of theca cell tumor showing islands of yellow tissue separated by bands of fibrous tissue.

HISTOGENESIS

The histogenesis of solid ovarian tumors has not been definitely established. One school, the disciples of Pflüger's theory, maintains that the granulosa cells and the theca interna cells of the ovary are derived from the gonadal epithelial covering. Fischel believes that the epithelial cells are derived from the mesenchyme of the ovary and that the germinal epithelium acts only as a nonfunctioning layer surrounding the ovary and contributes in no way to its structure. According to Robert Meyer,[1] granulosa cell tumors arise from mesenchymal embryologic rests ("granulosaballen"), in the hilus of the ovary, a view which is also supported by Walter Schiller.[7] Recently Voigt[8] reported a case of primary granulosa cell tumor of the retroperitoneum, and the fact that this primary tumor developed in a site far removed from functionless ovaries certainly lends strength to Fischel's theory. Geist[9] is of the opinion that granulosa cell tumors and theca cell tumors arise from differentiated mesenchymal cells which are potentially capable of becoming either granulosa or theca cell in type. Novak[10] is of the same opinion and for this reason opposes segregation of theca cell and granulosa cell tumors. Greenhill and Greenblatt[11] recently reported a case of combined theca and granulosa cell tumors and concluded that this case gives much weight to the theory that theca cell tumors and granulosa cell tumors originate in a common type cell of the ovarian mesenchyme, the "progranulosa cell."

Recent experimental production, by means of x-rays, of theca and granulosa cell tumors in the ovaries of mice, some of which showed definite lutein change, have been carried on by Furth and Butterworth[12] and by Traut and Butterworth.[13] Through these experiments, evidence is produced that, in experimental animals at least, granulosa cell tumors might arise from surviving adult granulosa cells. Certainly, although the exact manner of origin of theca cell tumors and of the closely related granulosa cell tumors is still a matter of conjecture, the preponderance of evidence is in favor of Fischel's theory of mesenchymal origin of the theca and granulosa cells.

PATHOLOGY

Theca cell tumors vary in size from a few centimeters in diameter to the size of a large grapefruit. On vaginal examination the consistency is that of a fibroma of the ovary or of a fibromyoma of the uterus. The same consistency is noted when the tumor is examined following removal. Externally the growth is slightly irregular in outline and varies in color from yellowish brown to yellowish red. On cut section the tumor is encapsulated and composed of many islands of yellow tissue separated by bands of connective tissue; occasionally small cystic areas may be noted throughout the tumor. Microscopically, theca cell tumors are made up of interlacing bands of spindle or epithelioid cells irregularly distributed and separated by strands of connective tissue containing hyaline plaques. The nuclei are oval and rod shaped with an occasional mitotic figure present. Fat stains show the presence of intracellular and extracellular lipoid material, which, according to Geist, is doubly refractile and probably consists of cholesterol or cholesterol esters.

CLINICAL FEATURES

Theca cell tumors of the ovary are usually unilateral and are of the consistency of a fibroma of the ovary or fibromyoma of the uterus. They occur at any age, the oldest reported case being that of a woman aged 90 and the youngest that of a woman aged 18. All but three of the reported cases occurred at or past the menopause. That theca cell tumors are biologically active is evidenced by the atypical bleeding found in the menopausal and postmenopausal cases and by the occurrence of endometrial hyperplasia in a large number of these cases. In younger women, periods of amenorrhea, preceded or followed by menorrhagia, is the usual his-

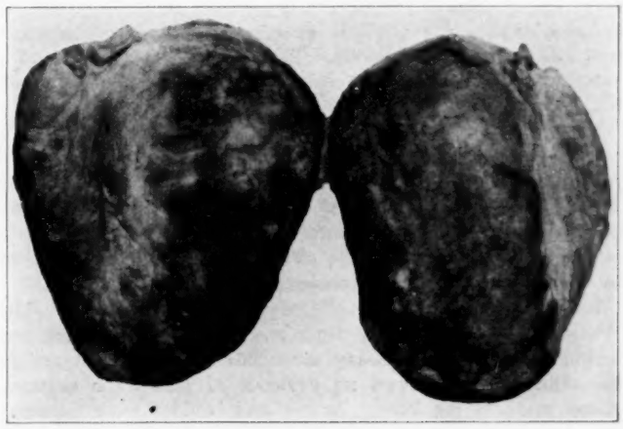

Fig. 2 (case 2).—External surface of theca cell tumor showing irregular outline and dilated blood vessels, ranging in color from lemon yellow to orange.

6. Geist, S. H., and Spielman, Frank: An Unusual Ovarian Tumor Containing An Estrogenic Hormone, J. A. M. A. **104**: 2173 (June 15) 1935. Geist, S. H.: Am. J. Obst. & Gynec. **30**: 480 (Oct.), 650 (Nov.) 1935. Geist, S. H., and Gains, J. A., ibid. **35**: 39 (Jan.) 1938.
7. Schiller, Walter: J. Obst. & Gynec. Brit. Emp. **43**: 1135 (Dec.) 1936.
8. Voigt, W. W.: Am. J. Obst. & Gynec. **36**: 688 (Oct.) 1938.
9. Geist, S. H., in discussion on paper by Traut and Butterworth.[13]
10. Novak, Emil, and Gray, L. A.: Am. J. Obst. & Gynec. **31**: 213 (Feb.) 1936.
11. Greenhill, J. P., and Greenblatt, R. B.: Am. J. Obst. & Gynec. **36**: 684 (Oct.) 1938.
12. Furth, J., and Butterworth, J. S.: Am. J. Cancer **28**: 66 (Sept.) 1936.
13. Traut, H. F., and Butterworth, J. S.: Am. J. Obst. & Gynec. **34**: 987 (Dec.) 1937.

tory. Although only one case has been examined by hormone assay, the finding of a large amount of the estrogenic substance in this case and the frequency with which hyperplasia of the endometrium has been encountered in other cases of this type present sufficient evidence to indicate that usually the estrogenic substance is found in these cases in larger quantities than in normal ones.

REPORT OF CASES

CASE 1.—*History.*—A. M. C., a woman aged 24, admitted to Charity Hospital Nov. 27, 1937, complained chiefly of pain in the right side and amenorrhea. She stated that she had not menstruated since Jan. 13, 1937. Prior to that time her menstrual periods had occurred approximately every twenty-eight days and had lasted for a period of three days. The menstrual cycle began when the patient was 10 years old. She had been married for ten years and had been pregnant once, resulting in a normal delivery nine years before. Her last menstrual period began Dec. 15, 1936, and continued until Jan. 13, 1937. For four months prior to admission she experienced pain in the right side and right lumbar region. There had been a slight leukorrheal discharge, and the patient had noticed a mass in the right side for three weeks. Other features of the history were irrelevant.

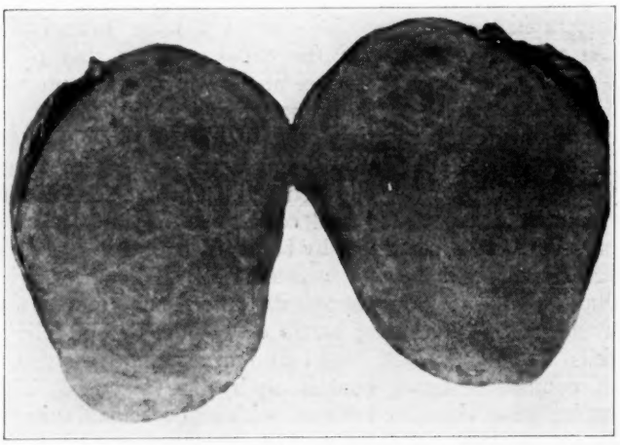

Fig. 3 (case 2).—Cut surface of tumor shown in figure 2. Note islands of tumor tissue separated by bands of connective tissue.

Examination.—On physical examination the blood pressure was 140 systolic, 80 diastolic. The breasts were flabby and a mass was felt in the right side of the abdomen. Otherwise, the general physical examination was negative.

On vaginal examination, the external genitalia and Skene's and Bartholin's glands were normal. A mild cystocele and rectocele were present. The cervix was slightly enlarged and soft with a moderate degree of infection. The size, shape, position and mobility of the uterus were normal. There was a mass in the right adnexa the size of a golf ball, not attached to the uterus, and of firm consistency.

Laboratory examination of the urine was negative. The Wassermann reaction was negative. The blood pressure was within normal limits. X-ray examination of the chest and of the sella turcica showed no evidence of pathologic changes. X-ray films of the kidney, ureter and bladder were negative. The blood count was well within normal limits. The basal metabolic rate was minus 5.

The preoperative diagnosis was chronic cervicitis and luteinized granulosa cell tumor of the ovary.

Operation.—This consisted of dilation and curettage and of laparotomy. On examination of the pelvis, the uterus was found to be normal in size, shape and mobility. The left adnexa were normal. On the right side a large, firm, yellow ovarian tumor approximately 5 cm. in diameter was found. It was freely movable and involved the whole of the ovary. Ascites was not present. A right oophorectomy was performed and the abdomen was closed in anatomic layers. The patient had a normal postoperative course and was discharged on the tenth postoperative day.

Pathologic Reports.—Gross: The tumor measured 5 cm. by 5 cm. and was yellowish red and firm. Cut section revealed the tumor to be made up of numerous islands of yellow tissue, separated by bands of connective tissue. On exposure to air the yellowish color deepened.

Microscopic: Uterine scrapings were examined microscopically. Section of the endometrium showed inactivity and hypoplasia of glandular elements. Slight secondary infection was noted. Section of the ovary showed the tumor to be made up of numerous bands of interlacing fibrous connective tissue separating masses of irregularly arranged spindle shaped cells. Fat stains showed the presence of lipoids in large amounts both intracellularly and extracellularly.

Follow-Up.—The patient menstruated five weeks after operation and has menstruated regularly ever since, menstrual periods occurring approximately every twenty-eight days and lasting from three to four days.

CASE 2.—*History.*—Mrs. L. B. aged 22, admitted to Touro Infirmary April 19, 1938, complained chiefly of amenorrhea. The patient missed her October 1937 period but menstruated at the end of November. She did not menstruate in December 1937 or January 1938 but did in February and March. All periods were normal when present. Menstrual periods began at the age of 12 years and occurred at from twenty-eight to thirty day intervals, lasting from four to five days. Severe dysmenorrhea was present on the first day of each period, but the flow was normal in amount and character. She had never missed a period before October 1937. She was married in July 1937 and had used contraceptives ever since and had never become pregnant. Prior to admission she had not menstruated for seven weeks. There were several attacks of pain in the lower right quadrant for two months, the pain radiating down into the pelvis. Otherwise the patient's history was irrelevant.

Fig. 4 (case 1).—Theca cell tumor under low power showing spindle shaped cells separated by bands of connective tissue and containing hyaline plaques.

Examination.—The blood pressure was 120 systolic and 70 diastolic. The breasts were small, and aside from a suggestion of masculine distribution of the pubic hair there were no abnormalities noted.

Vaginal examination revealed a nulliparous outlet, intact perineum, no cystocele or urethrocele and no infection of Bartholin's or Skene's glands. The cervix was small. The uterus

was normal in size, shape and mobility. The left ovary was palpable but of normal size. The right ovary was enlarged to the size of a small grapefruit and very hard and firm.

The Wassermann reaction was negative. The urine was normal and a blood count was within normal limits.

The preoperative diagnosis was theca cell tumor of the right ovary.

An operation was performed April 21 with a subumbilical midline incision. Exploration of the pelvic cavity showed that the uterus was normal in size, shape, position and mobility. The right tube was normal but the right ovary was large, the size of a small grapefruit and freely movable. The tumor occupied the entire ovary, was freely movable, slightly irregular in outline and of yellowish red. The tumor was firm and there was

Fig. 5 (case 2).—Theca cell tumor under high power showing epithelioid cells.

no evidence of ascites. A right oophorectomy and appendectomy were performed. The abdomen was closed in anatomic layers.

Pathologic Report.—Gross: The tumor measured 10 by 12 cm. in diameter and occupied the entire ovary; it was slightly irregular in outline and of very firm consistency. The external coloring varied from yellowish red to yellowish brown. A few dilated blood vessels coursed over the surface of the ovary. On cut section the tumor was found to be solid and made up entirely of areas of yellow tissue separated by thin septums of connective tissue.

Microscopic: Section of the ovary showed that it was made up of bundles of elongated cells with nuclei that were oval and rod shaped, separated by small amounts of intracellular substance. An occasional mitotic figure was noted, although the cells were for the most part well differentiated. Histologically it was a supportive cell neoplasm. No epithelial elements were demonstrated. A fibroma was present.

A corrected pathologic report demonstrated a theca cell tumor of the ovary and chronic appendicitis. Fat cells showed presence of intracellular and extracellular lipoid material in large amounts.

Follow-Up.—The patient menstruated four weeks after operation and has menstruated at regular intervals ever since.

COMMENT

As a general rule, theca cell tumors occur at or past the menopause. Of the twenty-four cases reports of which have appeared in the literature, only three have occurred in younger women (Loeffler and Priesel, one case; Geist, two cases). Both of our cases occurred in young women, and, in contrast to the menorrhagia at the menopausal age, both of our patients had a period of amenorrhea of varied duration. This is true also of the cases of theca cell tumors that appeared in younger women which were reported by Loeffler and Priesel and by Geist. The history of periods of menorrhagia followed by or preceded by periods of amenorrhea and accompanied by the clinical finding of a unilateral solid ovarian tumor should arouse suspicion as to the existence of a theca cell tumor, even in a young female. In the second case, although the first pathologic report was that of fibroma, we were so confident that such was not the case that we persuaded the pathologist to restudy the slides and make special fat stains of the tumor. This led to a corrected diagnosis of theca cell tumor. Undoubtedly a number of cases of theca cell tumors have been reported in the past as fibromas of the ovary. Correlation of the clinical history of abnormal bleeding and the luteinized appearance of the tumor should suggest the possibility of theca cell tumor, and extensive microscopic study should be made by the pathologist to determine its presence. Otherwise we are certain that the majority of these cases will be reported as fibromas. Unfortunately we failed to obtain any endometrium from our second case. The first case, however, showed an inactive endometrium with hypoplasia of the glandular elements. This finding we are unable to explain. The majority of theca cell tumors reported have shown definite hyperplasia.

In both cases unilateral oophorectomy was performed. The uterus, both tubes and the remaining ovary were allowed to remain in situ, as the tumors were grossly benign and only two of the reported cases have been malignant. Since removal of the tumors, normal menstrual cycles have been reestablished in both cases.

CONCLUSIONS

1. Theca cell tumors are a definite clinical entity and, though occurring most frequently at the menopause, may occur at any age.

2. From the reported cases and our two cases of theca cell tumors occurring in young women, it would seem that theca cell tumors may produce menorrhagia in younger women but that amenorrhea of varying periods is the rule. In women near the menopause, menorrhagia is the rule.

3. Unless fat stains and special studies are made of solid ovarian tumors, especially when associated with amenorrhea or menorrhagia, a number of theca cell tumors will continue to be erroneously diagnosed as fibromas.

1430 Tulane Avenue.

First Recorded Pandemic Plague.—The first recorded pandemic of plague according to Wu was that of Justinian in the sixth century, starting in Egypt in 542 A. D. and spreading to Constantinople. It lasted fifty to sixty years, and its victims are estimated at 100,000,000. The second plague pandemic, the "Black Death," took place in the fourteenth century in Europe and claimed 25,000,000 victims or about one fourth of the population. In Great Britain from half to two thirds of the people perished. The great plague epidemic of London, 1664-1666, is said to have killed 70,000 persons out of a total population of 450,000. Plague disappeared from England in about 1680, having been almost continuously present for nearly 140 years, with five epidemics.—Herms, William B.: Medical Entomology, New York, Macmillan Company, 1939.

Clinical Notes, Suggestions and New Instruments

SULFANILAMIDE IN STAPHYLOCOCCIC SEPTICEMIA

TWO CASES WITH RECOVERY

WILLIAM A. THORNHILL JR., M.D.; HOWARD A. SWART, M.D., AND CLIFTON REEL, M.D., CHARLESTON, W. VA.

Staphylococcic septicemia has long been considered as almost invariably fatal, and the finding of staphylococci in the blood stream of a patient with septicemia has led to the rendition of many a hopeless prognosis.

The recent introduction of sulfanilamide, and its use in infections of all types, has been of interest to all medical practitioners.

We have found one report of staphylococcic septicemia successfully treated with sulfanilamide. Morris [1] reports the use of antitoxin, transfusions and sulfanilamide for treating a white man aged 37 whose blood cultures showed Staphylococcus albus on four occasions.

REPORT OF CASES

CASE 1.—A white man, aged 31, was admitted to the Charleston General Hospital, Aug. 17, 1938, with the history of having jabbed the end of a pick into his knee nine days before admission while working as a coal miner. The patient noticed that shortly afterward the knee became painful and swollen. His doctor gave him tablets of mercury bichloride to dissolve in water for bathing the knee. In spite of this treatment the knee became worse.

Examination on admission revealed that the knee was swollen and tender. There was a small, unhealed puncture wound, which showed some infection, over the patella. The thigh was also swollen and tender. X-ray examination of the knee was negative. The patient's temperature on admission was 98 F. This rose to 102 F. at 4 p. m. and to 103.8 F. at 8 p. m. Urinalysis August 17 showed albumin (1 plus), no sugar, casts (1 plus), an occasional red blood cell, pus (1 plus) and mucus (1 plus). Treatment by means of continuous warm moist dressings to the knee and thigh was started.

August 18 his temperature was 104.4 at 8 p. m. Sulfanilamide 20 grains (1.3 Gm.) every three hours was started. This was accompanied by sodium bicarbonate 15 grains (1 Gm.) twice a day.

August 19 the swelling of the knee had receded. The patient was coughing and complaining of inability to breathe. A roentgenogram of the chest was negative. His temperature on this day was 102.5 F. at midnight.

August 20 a blood culture was reported as showing 5 colonies per cubic centimeter of an organism, probably Staphylococcus aureus. The hemoglobin, which had been 70 per cent August 19, had dropped to 59 per cent. Widal and undulant fever tests were reported negative, as was the blood Kline test. The sulfanilamide concentration in the blood on this date was 1.5 mg. per hundred cubic centimeters.

The patient was very ill at this time, being delirious and noncooperative. His condition seemed precarious. A transfusion of 500 cc. of blood was given August 20. On this day his temperature rose to 105.4 F. The pulse during this time was running between 120 and 140. The abdomen was somewhat distended and the patient perspired freely.

August 21 the temperature dropped to 100.4 F. at 8 a. m. However, it rose again to 103.4 F. at 8 p. m. On this day the hemoglobin was 70 per cent, erythrocytes 4,600,000 and leukocytes 16,000. The sulfanilamide concentration in the blood had risen to 3.5 mg.

August 22 cellulitis on the lateral side of the thigh was definitely present. The temperature ranged from 101.4 F. at 4 a. m. to 104.4 at 8 p. m. The patient did not respond to questions. Roentgen therapy was given, also a transfusion of 250 cc. of blood.

August 23 a second culture showed Staphylococcus aureus with not as many colonies as in the first culture. The blood sulfanilamide concentration at this time was 5 milligrams per hundred cubic centimeters.

The patient was given sulfanilamide during this time and had transfusions of 250 cc. of blood every other day. His temperature varied from 102 F. to 103 F. and on August 29 fluctuation was detected on the lateral side of the left thigh. The same day, under local anesthesia, an incision was made and 300 cc. of thin yellow pus was evacuated. Warm moist dressings were again started.

Following this procedure the leg drained thin yellow pus in increasingly smaller amounts and the temperature slowly receded. Blood sulfanilamide determinations were reported as 10.5 mg. August 26, August 29 and September 1.

A third blood culture was reported August 26 as showing Staphylococcus aureus haemolyticus, and culture from the pus of the abscess showed Staphylococcus aureus, slightly hemolytic. September 9 blood culture showed only one colony of Staphylococcus aureus after four days' growth. The blood sulfanilamide ranged from 10.5 mg. September 1 to 6.8 mg. September 2.

The patient made a slow but continuous improvement. September 12 there was practically no drainage from the leg, and warm moist dressings and sulfanilamide were discontinued. However, because of reports that improvement following the use of the drug was not maintained after its withdrawal, the administration of sulfanilamide was started again.

September 12 blood culture was reported as follows: "Plates sterile, slight growth of staphylococcus in broth." September 20 blood culture was sterile after seven days and on September 26 a similar report was made. October 3 the culture was sterile after eight days.

September 20 the sulfanilamide was again stopped. While the patient felt very much better, his temperature never dropped below 100 F. for any length of time and his leg still drained pus. He complained also of pain in his left shoulder, and a slightly tender swelling eventually appeared in the left axillary space.

He had received 5,450 cc. of blood in thirteen transfusions over a period of thirty-nine days. His hemoglobin rose to 72 per cent October 6.

A roentgenogram of the femur October 5 showed subacute osteomyelitis, distal two thirds, shaft of femur, with irregular bone absorption and slight periosteal thickening. The process involved the knee joint.

It was considered inadvisable for the patient to go home because of the continued elevation of temperature and axillary swelling, but he became very anxious to leave and was discharged October 7, fifty-one days after admission. He returned to the hospital October 28, twenty-one days after discharge, complaining of pain and swelling under the left arm. He was found to have marked axillary adenitis and cellulitis of the shoulder region. Roentgenograms were negative. At this time the leg wound was healed but there was little motion in the knee.

His temperature on readmission was 102.6 F. by mouth at 4 p. m. His blood count showed 52 per cent hemoglobin, 2,800,000 erythrocytes and 21,500 leukocytes, of which 94 per cent were neutrophils. Urinalysis was essentially negative.

Treatment was instituted by means of warm moist dressings to the region of the shoulder, sulfanilamide 5 grains (0.3 Gm.) every hour and blood transfusions.

An axillary abscess formed, and on November 12, fifteen days after the second admission, it was incised under local anesthesia and 200 cc. of thin yellow pus evacuated.

Blood cultures on this visit were sterile after forty-eight hours and after seven days. Culture of the pus from the abscess showed Staphylococcus aureus, slightly hemolytic.

Sulfanilamide was continued until November 23. The blood sulfanilamide rose to 11.8 mg. at this time. Drainage from the wound gradually subsided, leaving the shoulder joint very stiff.

He received three blood transfusions, 1,150 cc. of blood in all, at this visit. His hemoglobin, which was 52 per cent October 29, dropped to 36 per cent November 7 but rose again to 62 per cent November 17.

1. Morris, John F.: Staphylococcus Septicemia, West Virginia M. J., 35: 186-187 (April) 1939.

He was again dismissed from the hospital December 9, at which time the axillary wound was almost completely healed. The shoulder was very stiff. There was little motion in the left knee and some weakness of the external lateral ligament of this knee.

Because of the bad roads and inaccessibility of his home, he was not seen again until March 9, 1939, three months after leaving the hospital. At this time he had complete and painless motion in the left shoulder. He had only 20 degrees flexion of the left knee, however. The wound of the leg was healed and he walked with a cane.

He returned to the hospital May 22, at which time it was found that there was drainage again from the sinuses on the lateral surface of the thigh. The knee was stiff in a position of 165 degrees extension. He was again treated with warm moist dressings and traction and when last seen there was still some drainage of pus from the thigh.

CASE 2.—J. B., a white boy aged 15 years, was first seen by F. C. R. on the third day of his illness complaining of pain in the left upper jaw, for which he had consulted his dentist the preceding day. He was referred as having no dental lesion. His family and past histories were noncontributory except for tonsillectomy in 1937.

The patient was apparently healthy and cooperative. The left side of the face was generally swollen and red, including both eyelids. There was injection of the conjunctivae and limitation of the excursion of the eyeball. The infra-orbital area medial to the foramen was tense, and palpation yielded a sensation of fluctuation. The left side of the nose was blocked by edematous, reddened mucous membrane and seropurulent drainage. The antrum was dark on transillumination. There was some pharyngeal congestion and slight cervical adenopathy. Antral irrigation produced a few cubic centimeters of fine granular pus.

The patient was admitted to an eye, ear, nose and throat hospital the following day because of an increase in his cellulitis and a rise of temperature to 103.2 F. His blood count was reported to show 70 per cent hemoglobin, 3,900,000 erythrocytes and 14,600 leukocytes, with 86 per cent polymorphonuclear forms, 11 of which were immature. Nasal smear and cultures revealed both a streptococcus and a staphylococcus. The urine showed albumin, pus and an occasional red blood cell and granular cast.

On the fifth day of his disease the infra-orbital abscess was incised and pus evacuated. The fever level remained about 104 F. By the eighth day an abscess which had formed in the left tonsillar fossa was incised and drained profusely. The same day he developed proptosis of the right eye with marked injection, and small hyperemic areas over the left anterior superior iliac spine and right heel with scattered petechiae over the extremities. His leukocytic count was 18,400 with essentially the same differential picture. There was less albumin and pus in the urinary specimen. He became semicomatose, but his response to intravenous fluids was gratifying.

At this point he was seen by one of us (W. A. T.), and transferred by ambulance to a general hospital with a clinical diagnosis of septicemia and a cavernous sinus thrombosis, secondary to a spontaneous left infra-orbital abscess. Blood culture was taken, sulfanilamide therapy instituted, and transfusion performed. The blood culture showed 50 colonies per cubic centimeter of hemolytic Staphylococcus aureus. The leukocyte count was 20,400 per cubic millimeter. Eighty-six per cent of these cells were polymorphonuclears. There were 4,000,000 erythrocytes with 68 per cent hemoglobin. His blood sulfanilamide level was maintained between 4.0 and 7.65 for the first sixteen days of his second hospitalization with constant dosage. He was then given a respite of one week and returned to a steady dosage for nineteen more days. He received during the course of his illness 865 grains (56 Gm.) of sulfanilamide. Transfusions of 250 cc. of citrated blood were given on fourteen occasions between the fifteenth and fiftieth days of his illness.

Bilateral proptosis prompted a diagnosis of bilateral cavernous sinus thrombosis and he had a paralysis of the left fourth nerve, which did not clear up until some three months after his acute stage. There was also transient paralysis of his seventh and ninth nerves on the left. Ten days after his hospital transfer thick yellow pus was aspirated again from his infra-orbital abscess, and incision and drainage were performed. An acute bilateral otitis media developed but subsided without drainage.

He was discharged on the fiftieth day of his illness but continued to have a low grade fever at home for some weeks. He also had a subcutaneous infection on his right forearm, which persisted unchanged for about two weeks in spite of roentgen treatment and eventually had to be opened during his convalescence in Florida. A roentgenogram of the arm indicated periostitis. After incision and bone scraping, drainage persisted for one month. He has at this date still some periostitis and drainage from the forearm, though he otherwise is quite well.

COMMENT

It has been thought desirable to report these cases because of the failures in treating staphylococcic septicemia and because of the widespread interest in the use of sulfanilamide. How much of the credit for the cure must be given to the blood transfusions and roentgen treatment in the one case is difficult to decide. The transfusions bolstered up the patient's hemoglobin, which was attacked by both the infectious process and the sulfanilamide. The roentgen therapy undoubtedly helped to localize the abscess in the leg.

The use of so many therapeutic agents in the treatment of this disease is evidence that no one of them is effective in every case. Another point brought out by a study of the literature is that the number of cases of the disease is comparatively small and few men become proficient in its treatment. Sulfanilamide is much more easily procurable than either antitoxin or bacteriophage, and if further successes follow its use in this disease it would seem to be the method of choice.

CONCLUSION

Two patients with Staphylococcus aureus haemolyticus septicemia with formation of localized abscesses recovered following the use of sulfanilamide, blood transfusions and drainage of the abscesses.

SULFAPYRIDINE IN THE TREATMENT OF STAPHYLOCOCCUS AUREUS BACTEREMIA

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CHICAGO

Much interest has been aroused by the advent of sulfapyridine. Although its use has been almost limited to the treatment of pneumonic processes, its efficacy in other conditions has been briefly reported.

Instances of the use of the drug in staphylococcic septicemia or bacteremia of necessity are few and brief. Fenton and Hodgkiss [1] reported its use in a case with an atypical clinical picture. A single culture of the blood revealed Staphylococcus aureus. The only significant finding was x-ray evidence of pleural thickening. The temperature dropped markedly twenty-four hours after administration of the drug. O'Brien and McCarthy [2] reported staphylococcic bacteremia following furunculosis, with a dramatic drop in temperature and sterile blood culture following therapy with sulfapyridine. Maxwell's [3] patient had staphylococcic bacteremia coincidental to pneumonia. Staphylococci were recovered from two cultures of the blood. The temperature dropped to normal in forty-eight hours and culture of the blood became sterile seven days later. Long [4] mentions rapid sterilization of the blood after the institution

From the Surgical Service of Michael Reese Hospital.
The Department of Bacteriology, Dr. Katharine M. Howell, director, cooperated in doing the bacteriologic work.

1. Fenton, W. J., and Hodgkiss, Fred: Lancet **2**: 667 (Sept. 17) 1938.
2. O'Brien, E. J., and McCarthy, C. J.: Lancet **2**: 1233 (Dec. 3) 1938.
3. Maxwell, James: Lancet **2**: 1233 (Nov. 26) 1938.
4. Long, P. H.: Sulfapyridine, J. A. M. A. **112**: 538 (Feb. 11) 1939.

of sulfapyridine therapy in three of five patients ill with staphylococcic bacteremia. This is what he expected as a result of his experimental work with animals.

REPORT OF CASES

To these brief reports can be added our two cases:

CASE 1.—M. K., a white girl aged 28 months, entered Sarah Morris Hospital Feb. 3, 1939, with complaints of swelling and pain of the left lower leg. There was a history of previous furunculosis with a large carbuncle on the buttock. One week before admission this carbuncle had been accidentally injured, following which there was purulent drainage. During the next three days the patient had a series of chills with high temperature and anorexia. Following this she developed pain, and then swelling of the left leg from the knee to the ankle. The history is otherwise irrelevant.

Physical examination on admission revealed a rectal temperature of 104.2 F. There were no abnormalities other than a healing infection of the buttock and the swelling of the left leg, which was symmetrical from the knee to the ankle with tightly stretched skin. The anterior tibial surface was red, warm and indurated. A diagnosis of osteomyelitis with subperiosteal abscess was made.

The patient was operated on under ethylene anesthesia. A subperiosteal collection of pus was found at the upper portion of the tibia. Drill holes were made, and pus was obtained from the marrow cavity. A window of bone was cut out and petrolatum packing inserted. Cultures of the pus obtained showed hemolytic Staphylococcus aureus.

After operation, the course was marked with daily temperature spikes from 102 to 104 F. rectally, as shown in chart 1. Blood cultures revealed hemolytic Staphylococcus aureus. Multiple small transfusions of citrated blood were given and large doses of sulfanilamide were started. Although the temperature dropped slowly, the patient continued to be very toxic and the blood cultures continued positive for Staphylococcus aureus.

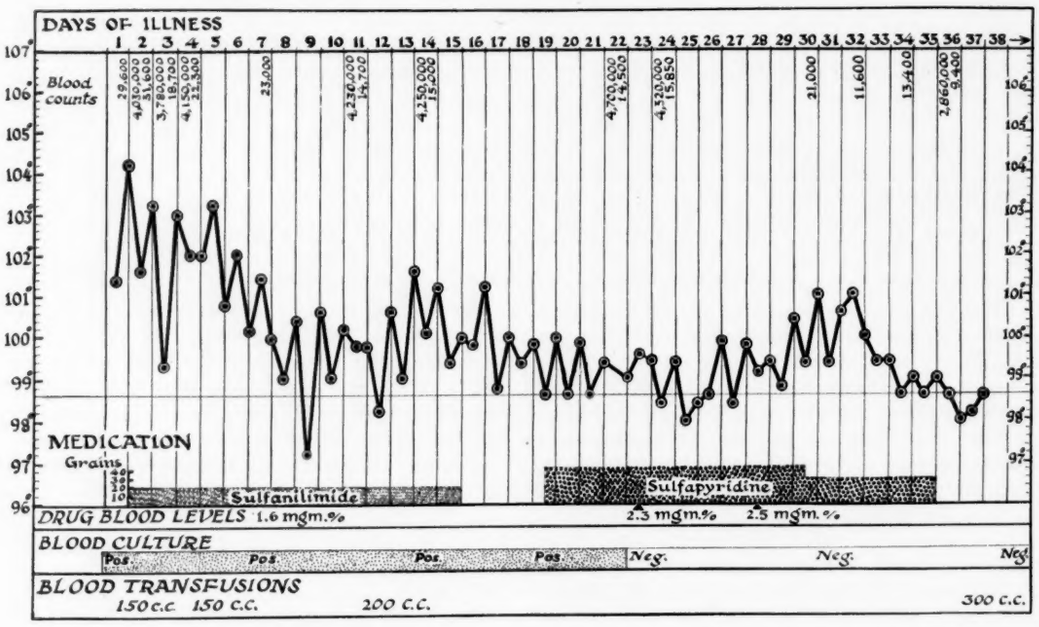


Chart 1.—Temperature, blood counts, blood culture and treatment in case 1.

Since the sulfanilamide over a long period did not sterilize the blood stream, it was discontinued. In an effort to accomplish this sterilization, treatment with sulfapyridine was begun. This 30 pound (13.6 Kg.) child was given 45 grains (3 Gm.) of sulfapyridine daily in six divided doses. On the fifth day blood culture was negative. The same dosage was continued for six more days when the temperature, which had been dropping, reached normal and the toxicity disappeared. The dose was then reduced to 30 grains (2 Gm.) daily for five days and then stopped. There was never any vomiting. The general condition improved rapidly in spite of an upper respiratory infection and fever for several days. During the period of sulfapyridine therapy all other medications were discontinued except for hot wet dressings locally. Because of the anemia, a blood transfusion was given at the end of the course of sulfapyridine.

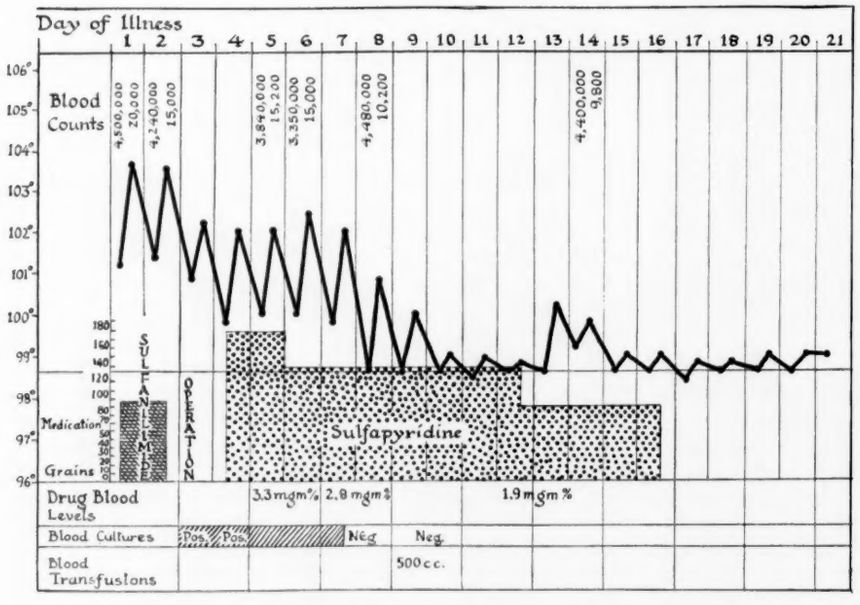


Chart 2.—Temperature, blood counts, blood culture and treatment in case 2.

CASE 2.—E. M., a white boy aged 11 years, who entered Sarah Morris Hospital May 5, 1939, had a severe chill one week previously, followed by a rise in temperature. The next day there was pain, swelling and redness of the anterior aspect

of the right lower leg. These became more pronounced daily, with a gradual rise in the rectal temperature to 104 F. There was no history of recent trauma, upper respiratory infection or furunculosis.

Physical examination revealed a rectal temperature of 103.6 F. The child was sick and toxic. Significant abnormalities were limited to the right lower leg. It was tense with swelling, red and hot. There was marked tenderness, which seemed superficial. Roentgenologic examination revealed no bone involvement. Cellulitis of the leg was the tentative diagnosis.

Massive hot wet dressings were applied to the local lesion. One hundred grains (6.5 Gm.) of sulfanilamide (1 grain per pound of body weight) was given in the first twenty-four hour period. The next day (May 6) fluctuation was evident and the localized abscess was incised. Eight ounces (235 cc.) of thick pus was evacuated. Culture of this pus revealed Staphylococcus aureus. The next day (May 7) there was a drop in the rectal temperature to 102.2 F. (chart 2) but the boy looked very sick. Blood drawn for culture May 7 and again May 8 revealed Staphylococcus aureus bacteremia.

On the afternoon of May 8 sulfapyridine therapy was begun. A total of 270 grains (18 Gm.) was given by mouth in nine divided doses the first thirty-six hours, after which the daily dose was reduced to 135 grains (9 Gm.).

May 9 the boy complained of pain in his right elbow. Examination revealed swelling, redness and tenderness. Hot moist dressings were applied. The local condition improved and seventy-two hours later all the signs of inflammation had completely subsided.

May 12, the fourth day following institution of sulfapyridine therapy, blood drawn for culture was sterile. There was a decided drop in temperature to 100.8 F., with marked improvement in the general condition. Repeated blood cultures May 13 and 15 remained sterile. May 14 the dose of sulfapyridine was reduced to 90 grains (6 Gm.) daily for the next three days.

The temperature dropped to normal May 15 and remained so until May 21, when it rose to 101 F. Roentgenologic examination of the leg and elbow at this time revealed osteomyelitis of the tibia and ulna. Sulfapyridine was again given in daily doses of 90 grains for three days, when the temperature again became normal. The leg improved during this period, there was less drainage, and the arm showed no recurrence of any signs of inflammation.

COMMENT

The effect of sulfapyridine on the local lesion is something regarding which little is known. The lesion of the ulna in case 2 interested us greatly. Signs of inflammation appeared over night and disappeared completely within three days, leaving no residue of either subjective or objective symptoms, and yet twelve days later there was definite roentgenologic evidence of bone destruction, which is progressing slowly and will probably require drainage. This phenomenon may prove a very valuable aid in the treatment of acute osteomyelitis, especially as the recent trend seems to be toward conservative management. Whether sulfapyridine will be of any value in reducing the duration of osteomyelitis is as yet an open question.

We realize the pitfalls of reporting only two instances of sterilization of the blood stream in Staphylococcus aureus bacteremia and claiming effectiveness for any therapeutic agent. Unquestionably the blood stream is sterilized by normal body defense mechanisms more often than we realize.[5] Instances of such sterilization after the use of staphylococcus antitoxins are being reported in the literature more frequently. However, the change in the clinical pictures in these cases was striking enough to lead us to believe that sulfapyridine was instrumental in sterilizing the blood stream. The disease is one which has a high mortality, and any agent which might have any beneficial effect is worthy of further investigation, especially since the meager investigative work done so far would point to some specific action of this drug against the staphylococcus. Proper evaluation of the effectiveness of the drug can be made only on a large group of cases.

5. Reichel, H. A.: Proc. Staff Meet., Mayo Clin. **14**: 138 (March 1) 1939.

TREATMENT OF FRIEDLÄNDER'S SEPTICEMIA BY SULFAPYRIDINE WITH RECOVERY

KARL A. MEYER, M.D., AND LEO AMTMAN, M.D., CHICAGO

Septicemia resulting from Bacillus mucosus capsulatus (Friedländer's bacillus) is rare. It is in the French literature that one finds the most frequent reports. Colombe [1] in 1917 collected sixty cases from the world's literature, of which twenty-five were diagnosed during life by a positive blood culture. Caussade, Joltrain and Surmont [2] collected fifteen new cases which occurred from 1917 to 1924 and reported their own case. Since then a case has been reported by Creyx [3] and another by Lereboullet and Pierrot [4] in which recovery occurred. In 1924 Lereboullet and Denoyelle [5] reported two cases in children who recovered. In 1928 Mason and Beattie [6] reported their own fatal case, in which the portal of entry of the organism was not determined. They reviewed the literature and made mention of the fact that the "occurrence of septicemia from infection with Bacillus mucosus capsulatus is not generally recognized in Canada." Apparently up to 1927 there are only a few cases of Friedländer's septicemia in which recovery has occurred. In 1934 Baehr, Schwartzman and Greenspan [7] cited sixteen cases of B. Friedländer bacteremia, with recovery in four. Three of the patients who recovered had infections of the kidney and urinary passages. The authors point out that blood invasions from this source are often transient and that in two of the cases the organism was recovered from the blood stream only on the day following a urethral or ureteral chill. The other patient who recovered had an infection of the biliary passages. Kolmer [8] lists Bacillus mucosus capsulatus as an organism producing one of the rarer septicemias. He totals observations in 282 cases of septicemia. He states that case reports dealing with blood stream infections due to Bacillus mucosus capsulatus are uncommon and that reports showing complete recovery are rare. Since 1934 approximately twelve cases of this type of septicemia have been reported in the literature.[9]

From Grant Hospital and the Department of Medicine of the University of Illinois College of Medicine.

1. Colombe, J.: Les septicémies pneumobacillaires, Paris thèse, 1917, No. 29 de la bibliothèque de la Faculté de médecine de Paris.

2. Caussade, G.; Joltrain, E., and Surmont, J.: Septicémie à pneumobacille de Friedländer, Bull. et mém. Soc. méd. d. hôp. de Paris **48**: 148 (Feb. 8) 1924.

3. Creyx, M.: Sur un cas de pneumobacillémie, Compt. rend. Soc. de biol. **94**: 596 (March 12) 1926.

4. Lereboullet, P., and Pierrot, M.: Un nouveau cas de septicémie à pneumobacille de Friedländer terminée par la guérison, Bull. et mém. Soc. méd. d. hôp. de Paris **51**: 128 (Feb. 10) 1927.

5. Lereboullet, P., and Denoyelle, L.: Deux cas de septicémies graves à pneumobacille de Friedländer terminées par la guérison, Bull. et mém. Soc. méd. d. hôp. de Paris **48**: 226 (Feb. 29) 1924.

6. Mason, E. H., and Beattie, W. W.: Septicemia Due to a Strain of the Bacillus Mucosus Capsulatus Group in a Case of Diabetes Mellitus, Arch. Int. Med. **42**: 331-337 (Sept.) 1928.

7. Baehr, George; Schwartzman, G., and Greenspan, E. B.: Role of Bacillus Friedländer in Infections, Tr. A. Am. Physicians **48**: 353-354, 1933.

8. Kolmer, John A.: Ann. Int. Med. **8**: 612-631 (Nov.) 1934.

9. These cases have been reported by:
Railliet, Pérono and Morel: Septicemia and Meningitis Due to Friedländer's Pneumobacillus: Case, Bull. et mém. Soc. méd. d. hôp. de Paris **50**: 1693-1695 (Dec. 24) 1934.
Allen, B.: Otitis Cavernous Sinus Phlebitis Due to Bacillus Friedländer, J. Mount Sinai Hosp. **2**: 169-173 (Nov.-Dec.) 1935.
Hepp, J.: Uterine Gangrene and Septicemia Due to Friedländer's Bacillus Following Criminal Abortion: Case, Ann. d'anat. path. **13**: 116-121 (Jan.) 1936.
Germain, A., and Maudet, J.: Septicopyemia Due to Friedländer's Bacillus: Case with Initial Genito-Urinary Localization and Multiple Secondary Manifestations, Bull. et mém. Soc. méd. d. hôp. de Paris **52**: 1253-1259 (July 20) 1936.
Laroche, G., and Brocard, H.: Septicemia Due to Friedländer's Pneumobacillus: Death Caused by Azotemia Following Injections of Gonacrine (Acridine Dye): Case, Bull. et mém. Soc. méd. d. hôp. de Paris **53**: 567-569 (May 3) 1937.
Brunetti, F., Jr.: Septicopyemia from Klebsiella Pneumoniae (Friedländer): Case, Gior. di bacteriol. e immunol. **18**: 91-101 (Jan.) 1937.
Pfeiffer, D. B.: Klebsiella Pneumoniae (Bacillus Mucosus Capsulatus) Bacteremia Due to Prostatic Abscess: Case with Recovery, Ann. Surg. **106**: 1115-1118 (Dec.) 1937.
Bonciu, C.: Septicemia Due to Friedländer's Bacillus with Vegetating Ulcerative Aortic Endocarditis Causing Sudden Death (Case), Arch. rom. de path. exper. et de microbiol. **10**: 307-323 (Sept.) 1937.
Mamone, M., and Perez Fernandez, J.: Postabortal Septicemia Due to Bacillus Capsulatus Friedländer Type: Case, Rev. sid. a. d. endocrinol. **20**: 125-131 (March 15) 1937.
Brulé, M.: Hillemand, P., and Gaube, R.: Septicemia Due to Friedländer's Pneumobacillus: Case, Bull. et mém. Soc. méd. d. hôp. de Paris **53**: 362-365 (March 22) 1937.
Giroux, M.: Septicemia Due to Friedländer's Bacillus and Preavitaminosis, Laval méd. **3**: 163-166 (May) 1938.
Jobin, J. B., and Paquet, B.: Septicemia Due to Friedländer's Bacillus: Case, Laval méd. **3**: 151-162 (May) 1938.

REPORT OF CASE

L. N., a man aged 55, was first seen at home May 6, 1939, with a history of a sudden onset of septic temperature of eleven days' duration. There were no symptoms which would point to acute infection of the upper respiratory tract. For one week he had a violent chill on the average of once every day, usually in the evening but not at the same time. The chill, which lasted from twenty to forty-five minutes, was always followed by a fever of 103-104 F. and profuse sweats. When first seen at home, the patient appeared toxic with a temperature of 103 and pulse of 100. The only positive manifestations were diffuse dry rales and an occasional moist rale throughout the chest, especially in the lower lobes, and slight tenderness in the right upper quadrant of the abdomen. The spleen was enlarged on percussion. The condition in the chest persisted even after recovery, and this was interpreted as a chronic bronchitis. There was no expectoration. It was observed that the temperature between the paroxysms was almost normal. Smears were made for malaria, but no parasites were found. The therapeutic test with quinine was negative. X-ray examination of the sinuses and chest were negative.

May 8, at the patient's home, blood was drawn for routine agglutination tests and beef broth was inoculated for culture. The laboratories of the Chicago Board of Health reported

Smear from blood culture; Gram stain.

Bacillus mucosus capsulatus isolated from the broth culture and also from the blood clot in the specimen submitted for the agglutination tests. Smears showed a gram-negative short thick bacillus with a definite capsule. It fermented all the sugars except lactose. A mouse inoculated subcutaneously with the organism was found dead the next morning. A positive culture was obtained from the heart's blood.

The patient was removed to the hospital May 10. Blood culture done on the same day showed the same organism. A third culture May 12 after treatment was started showed only a few colonies of the same organism after ten days' incubation.

At 9 p. m. May 11, shortly after a severe chill, sulfapyridine was started with 30 grains (2 Gm.), followed by 15 grains (1 Gm.) every four hours, day and night. There were no more chills. After forty-eight hours the temperature remained normal with the exception of a single rise to 102 on the fifth day following institution of treatment. The drug was therefore continued until 9 a. m. May 22. Complete blood counts and urine examinations were done daily. There were no untoward effects observed from the drug. The patient has remained well to the date of this writing.

COMMENT

With no definite specific treatment for Friedländer's septicemia outlined in the literature, we felt that on the basis of the recent experimental work on mice infected with pneumococci and treated with sulfapyridine the clinical use of this drug was justified in our case. Whitby [10] states that in pneumococcic infections the drug acts by bringing about degenerative changes in the capsular material of the pneumococcus. Fleming [11] and Long,[12] unable to confirm this, did note that the multiplication of susceptible organisms is hampered both in vivo and in vitro following the administration of sulfapyridine to mice or culture mediums. Long therefore suggests that careful therapeutic trials of the effects of sulfapyridine in Friedländer's bacillary infections seem warranted. This we did with presumptive success. We therefore report this as a proved case of Bacillus mucosus capsulatus (Friedländer's) septicemia with portal of entry unknown, which was treated with sulfapyridine and ended in recovery.

30 North Michigan Avenue—185 North Wabash Avenue.

10. Whitby, Lionel: Lancet **2**: 1095 (Nov. 12) 1938.
11. Fleming, Alexander: Lancet **2**: 74 (July 9), 564 (Sept. 3) 1938.
12. Long, Perrin H.: Sulfapyridine, J. A. M. A. **112**: 538 (Feb. 11) 1939.

A METHOD OF TIMING HEART MURMURS

BERNARD FARFEL, M.D., HOUSTON, TEXAS

It seems that many physicians have little difficulty in learning to recognize normal heart sounds or in detecting the presence of a cardiac murmur but often their determination of the time of a murmur in the heart cycle is faulty. Cabot [1] states that the commonest of all errors in diagnosis of diseases of the heart is the misinterpretation of systole for diastole.

In routine examinations, many physicians rely on the ear alone, calling on palpation or observation of the apex, carotid or radial impulse when in doubt. That present clinical procedure is not entirely satisfactory is borne out by the frequent errors every physician sees or makes himself. Mackenzie [2] writes from his experience with recognized internists that many doctors never acquire the ability to time murmurs. Warfield, writing in Tice,[3] points out the possibility of mistaking a seesaw murmur in mitral stenosis with regurgitation for a prolonged systolic murmur. It would be presumptuous to dwell on the importance of proper timing of murmurs for physical diagnosis.

The method I am about to describe requires none of the intricate types of apparatus that have been devised. It requires nothing that the physician does not ordinarily have at the bedside. My own experience with palpation coincident with auscultation has been one of difficulty in correlating the two sensations so as accurately to time the murmurs I hear. I felt that I would better be able to time the murmurs heard were I able to employ vision in conjunction with hearing, and I particularly sought some method which could be used in all cases. I have utilized the method to be described in numerous instances and have found it useful. I taught the method to several of my associates, with gratifying results.

Briefly, the following technic is employed: After I have taken the patient's blood pressure, I leave the cuff in place and set the mercury column at about midway between the systolic and diastolic blood pressure readings. This is done so as to obtain good excursions of the column with each beat. If one listens to the normal heart, it will be found that the upward excursion of the mercury column is coincident with the second heart sound. In this way one has already established a point at which systole ends. Cabot [1] teaches that the mistaking of systole for diastole would not occur if the physician were sure just when systole takes place. Knowing that the second heart sound and the impulse given to the mercury are coincidental, one should note whether the murmur in question immediately precedes this phenomenon, as would be true of a systolic murmur, or follows it, which would be the case with a diastolic murmur.

1. Cabot, R. C.: Physical Diagnosis, Baltimore, William Wood & Co., 1931.
2. Mackenzie, Sir James: Diseases of the Heart, Edinburgh, Oxford University Press, 1925.
3. Tice, Frederick: Practice of Medicine, Hagerstown, Md., W. F. Prior Company, vol. 6, 1921.

That the second sound is dependent on aortic tension is pointed out by Howell,[4] who quotes Williams' work on animals in which he shows that the second sound disappeared as an animal bled to death and the heart failed to throw out a sufficient supply of blood to maintain aortic tension. That the sudden thrust upward of the mercury should occur at the moment when the second sound takes place may be at least partially explained physiologically. Best and Taylor[5] describe the rebound of the distended aortic wall at the close of systole, causing the aortic valves to close and forcing the blood along to the periphery as well.

It will also be observed, in using the method described, that the period during which the mercury falls slightly, just prior to the sudden rise, will usually coincide fairly well with the interval between the first and second sounds, namely systole. The technic given offers another means of timing murmurs. This communication is forwarded in the hope that a method that has proved useful to many of my associates and myself may be of some aid to others.

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT.

HOWARD A. CARTER, Secretary.

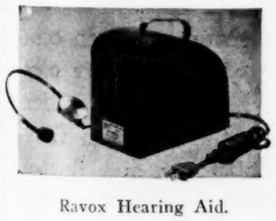
RAVOX HEARING AID ACCEPTABLE

Manufacturer: Zenith Radio Corporation, 6001 Dickens Avenue, Chicago.

Description.—The Ravox Hearing Aid is supplied with power through a cord which connects to a nominal 110 volt, 60 cycle, alternating current electric light receptacle. On measurement it was found that the power consumption was 20 watts. The Ravox unit is housed in a formed sheet metal case of somewhat irregular shape but attractive design. The weight of the unit is 5½ pounds and the overall dimensions are approximately 4½ by 7 by 9 inches. A crystal type watch case receiver with head band plugs into a pair of phone jacks at the rear of the device. The microphone operates on the condenser principle and is suspended by means of shock absorbing coil springs directly behind a cloth covered grill located in the front face of the unit. The amplifier has three tubes of standard make.

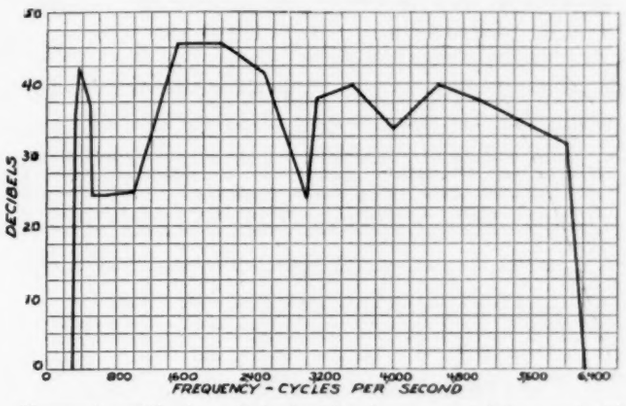
The amplifier is provided with a combination shut-off switch and tone control located at the rear of the housing and a volume control knob located at the side.

Performance Tests.—Both single frequency response tests and speech tests (articulation and intelligibility) were made. For the single frequency tests the Ravox unit was suspended by its handle within a chamber which is substantially free from standing waves and excited by pure tones produced by a loud speaker unit and oscillator. The measured amplifications obtained with the volume control full on and with the tone control set for maximum high frequency gain are shown on the accompanying graph. Corresponding amplification determinations were made with the tone control set for minimum high frequency response, and it was found that above 2,000 cycles the amplification was reduced on the average by approximately 15 decibels, whereas below 1,000 cycles the gain was substantially unaltered. By direct listening it was observed that for each test frequency the sound output was quite pure and substantially free from harmonics or subharmonics, but there was present a hissing or rushing noise which interfered with the test tone when the output intensity fell to about the input intensity.



Ravox Hearing Aid.

The performance of the Ravox hearing aid in transmitting speech sounds and sentences was very good. Thus with the instrument adjusted for maximum high frequency response and placed in a small room having good acoustic properties, with observers having normal hearing in another room listening to the output, it was found that it was necessary to reduce the amplification approximately 45 decibels to produce a loudness in the Ravox receiver judged to be equal to loudness of speech when directly listened to. Under these circumstances the inherent rushing sound previously mentioned was not objectionable and it was found that consonant-vowel-consonant syllables were transmitted over the Ravox with an almost perfect score. In fact no substantial difference in score was obtained when one was listening alternately to the sounds directly and over the Ravox link. Ordinary speech was likewise transmitted very efficiently. Hence it is concluded that the significant speech frequencies are transmitted by the Ravox hearing aid without admixture of disturbing sounds and amplification of approximately 45 decibels.



Measured amplifications obtained with volume control full on and with tone control set for maximum high frequency gain.

In view of the foregoing report, the Council on Physical Therapy voted to include the Ravox Hearing Aid in its list of accepted devices.

4. Howell, W. H.: Textbook of Physiology, Philadelphia, W. B. Saunders Company, 1907.
5. Best, C. H., and Taylor, N. B.: Physiological Basis of Medical Practice, Baltimore, William Wood & Co., 1937.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH, Secretary.

ASCORBIC ACID (See New and Nonofficial Remedies, 1939, p. 499).

Ascorbic Acid-Squibb.—A brand of ascorbic acid-N. N. R.

Manufactured by E. R. Squibb & Sons, New York City. No U. S. patent or trademark.

Tablets Ascorbic Acid-Squibb, 25 mg.: Each tablet is equivalent to 500 international units of vitamin C.

Tablets Ascorbic Acid-Squibb, 50 mg.: Each tablet is equivalent to 1,000 international units of vitamin C.

SULFAPYRIDINE-LEDERLE (See THE JOURNAL, June 24, 1939, p. 2603).

The following dosage form has been accepted:

Capsules Sulfapyridine-Lederle, 0.25 Gm.

COD LIVER OIL (See New and Nonofficial Remedies, 1939, p. 506).

I. V. C. Cod Liver Oil.—It has a vitamin A potency of not less than 2,250 units (U. S. P.) per gram and a vitamin D potency of not less than 260 units (U. S. P.) per gram.

Dosage.—For adults, 8 cc. (2 fluidrachms) daily; for children, 4 cc. (60 minims) daily.

Prepared by the International Vitamin Corporation, New York. No U. S. patent or trademark.

I. V. C. cod liver oil complies with the U. S. P. standards for cod liver oil. In addition it is required to have a vitamin A potency of not less than 2,250 units per gram and a vitamin D potency of not less than 260 units per gram.

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SATURDAY, OCTOBER 28, 1939

EFFECTS OF AIRPLANE NOISE ON AVIATORS

Experiments have shown that prolonged stimulation of the ear by intense sound causes cochlear degeneration resulting in deafness. Bauer [1] in 1926 said that the constant noise of high powered airplane motors causes diminution in hearing. At first this deafness gradually wears off after a few hours, but constant flying without protection for the ears leads to permanent impairment of hearing. Kawata [2] subjected guinea pigs to noise for a month and on microscopic examination found complete degeneration of the organ of Corti at the point of transition from the basal turn to the second coil of the cochlea.

Recently British investigators Dickson, Ewing and Littler [3] said that noise produced by certain types of multi-engined aircraft has been measured and found to reach loudness levels which are injurious to human ears. The loudness levels produced by various types of aircraft have been measured and have shown intensities of from 110 to 135 phons. Tests carried out on members of the Royal Air Force even after a few hundred hours of regular flying without helmets in enclosed cock pits showed a persistent loss of hearing for high tones. The observations included a complete aural examination in addition to audiometric tests. The subjects themselves were not always aware that their auditory acuity was impaired. This form of auditory defect probably is progressive in character as long as the patient continues to fly or to tune noisy aircraft. As the intensity and duration of the fatiguing sound was increased, all subjects showed a succession of phenomena. First there is an intensity value at C^3, about 100 decibels above the threshold of audibility, exposure to which for as little as two minutes leads to aural fatigue involving subsequent depression of response. Prolongation of the fatiguing sound beyond this point or further increase in its intensity causes greater immediate loss of sensitivity and slower recovery, until temporary deafness becomes chronic; still further increase in intensity brings about cochlear degeneration. The greatest hearing losses recorded in audiometric tests by the British investigators of patients suffering from traumatic deafness are almost always found in the frequency of C^5.

Noise in connection with flying arises from three sources, the engine exhaust, the propeller and the wind (slip stream). Tests were made to determine the amount of protection of hearing provided by the standard pattern of flying helmet and other ear protectors and also to determine what protection can be afforded by simple ways of blocking the ear or packing the meatus. They learned that packing the meatus with absorbent cotton smeared with petrolatum was a quick, safe and efficient method. Audiograms of aviators using a helmet of the high altitude type with the ear phones attached showed no loss for high tones. The effect of noise on the ear seems to depend to some extent on the relative position of the aviators in the airplane. If the aviators sit well forward and in front of the engines, the effect is considerably less severe than if they sit below or between the engines. Investigation is being continued in the hope of finding still more effective methods of protecting the ears of aviators.

1. Bauer, J. H.: Aviation Medicine, Baltimore, Williams & Wilkins Company, 1926, p. 157.
2. Kawata, Seiichi: Experimentelle Studien über die Larmschädigungen des Gehörorgans, Jap. J. M. Sc. **2**: 77 (Sept.) 1937.
3. Dickson, E. D. Dalziel; Ewing, A. W. G., and Littler, T. S.: The Effects of Aeroplane Noise on the Auditory Acuity of Aviators: Some Preliminary Remarks, J. Laryng. & Otol. **54**: 531 (Sept.) 1939.

CARDIAC NEUROSIS

Cardiac neurosis is especially baffling in the patient in whom it is associated with organic heart disease. In a recent study of this problem, Schnur [1] has suggested a procedure which may prove to be valuable in the differentiation of the symptoms and signs of the neurosis from those of the organic disease. The chief precipitating cause of cardiac neurosis in a person suffering from heart disease, he points out, is professional exaggeration of the severity of the process. Pain is more frequently a presenting symptom in cardiac neurosis than in organic heart disease, except in coronary thrombosis. Among other symptoms more common in neurosis are weakness, sighing respiration, insomnia, ringing or pounding in the ears, and faintness, dizziness, nervousness, irritability and flushes. Deep tenderness in the inframammary area in his group of patients was elicited in only 5 per cent of patients having organic heart disease, as contrasted with 80 per cent of those suffering from neurosis alone. Similarly, superficial hyperalgesia was demonstrated in less than 2 per cent of those with organic disease, whereas the incidence in cardiac neurosis was 68 per cent. This frequent hyperalgesia suggested the intradermal injection of procaine hydrochloride into the affected area. Immediate disappearance of hyperalgesia, tenderness

1. Schnur, Sidney: Cardiac Neurosis Associated with Organic Heart Disease, Am. Heart J. **18**: 153 (Aug.) 1939.

and pain resulted; also the symptoms not associated with the precordium which had been regarded as neurotic in origin disappeared. It was usually found unnecessary to inject the entire hyperalgesic area. Furthermore, ethyl chloride spray and, at times, saline solution intradermally and the oral administration of a red placebo were found equally effective. Cardiac neurosis, he concludes, is therefore a distinct entity with characteristics which can be recognized even in the presence of organic heart disease by the following criteria: an inherited or acquired predisposition to neurosis; a definite precipitating factor; symptoms such as inframammary pain and the others mentioned; inframammary tenderness and hyperalgesia; and, finally, relief by simple procedures such as intradermal injection of small quantities of procaine hydrochloride, together with suitable suggestion, the latter being the more important.

Other aspects of this problem have been recently emphasized by Professor Ryle[2] in the third Croonian lecture delivered at the Royal College of Physicians this year. Ryle states that there are no good grounds for regarding simple paroxysmal tachycardia as an expression of cardiac disease or intoxication. Its intermittence, its persistence through long years without physical deterioration, its temperamental and other associations, and the absence of all organic signs bring it within the category of the neuroses. Similarly, vasovagal attacks (Gowers' syndrome) belong, he feels, in this same group. Vasovagal attacks almost invariably occur in persons who are simultaneously afflicted by some slight impairment of general physical fitness and by a chronic or recurring anxiety—thus illustrating the combined influence of several factors which would seem to underlie so many of the neuroses. The menopause, a low-grade infection or anemia, a sudden visceral disturbance, colonic irrigation, or a severe bout of seasickness may serve as precipitating factors. On this basis, Ryle suggests that some violent vasomotor disturbance with accompanying vagal effects, manifest especially in the occasional bradycardia, seem to afford the best explanation of the attacks. Multiple visceral neuroses rarely occur together in point of time, Ryle points out. They alternate in a history or appear at different periods in a patient's life. In this respect there is an essential difference between so-called allergy and the more pronounced and specific anaphylactic response. Therapy should involve, he believes, first and essentially an assured diagnosis confidently stated. The second essential is a simple and reassuring explanation of the nature and genesis of the visceral symptoms themselves and of their innocence so far as life and ultimate prospects are concerned.

The study of the visceral neuroses is, Ryle concludes, a study of men and women, of personalities and temperaments, of heredity, habits and environments, and of peculiar biologic responses to common but often inconspicuous stimuli. Possibly the explanation of the visceral neuroses and of their tendency to be perpetuated over long periods may invoke an inborn nervous instability, the conditioned reflex or habit, endocrine imbalance, and allergic sensitivity, operating severally or in conjunction. Although with the aid of physiologic and pharmacologic experimentation better measures of counteraction and symptom-relief may be found, it is Ryle's belief that in the end the understanding and best protective contributions are likely to derive largely from a clearer knowledge of the whole man and from improved diagnostic achievement.

2. Ryle, John A.: Visceral Neuroses, Lancet **2**: 407 (Aug. 19) 1939.

HUMAN REPRODUCTIVE PATTERNS

Many factors influence human reproductivity, which in the last analysis determines world populations both qualitatively and quantitatively. The results of long years of study of the biologic and statistical factors involved, interspersed with personal lines of thought which have been provoked thereby, furnishes the subject of a recent book by Pearl.[1] Both the survival urge and the reproductive urge have a fundamental biologic role in influencing reproductive patterns, and there are recognizable differences in the strength of these factors. Just as there are demonstrable differences in the libido, there is likewise no reasonable doubt of variations between individual human beings in respect to innate reproductive capacity, though these are extremely difficult to measure precisely. One definitely determining factor is the limited span of reproductive life in the human female. Less important—because it varies less frequently and to a lesser degree—is the litter size or frequency of multiple births. Closely related to libido is the frequency of coitus, which, as Pearl points out, because of the restricted period available for successful fertilization, plays a large part in determining the fertility rate. This rate varies greatly with different individuals. Another element is what Pearl calls the pregnancy or conception rate in relation to the extent of time during which it is biologically possible for a woman to become pregnant. An additional factor is that reproductive wastage which is characterized by miscarriage or abortion, or by stillbirth. This wastage is most difficult to determine with any degree of accuracy, although there is ample evidence, Pearl believes, that reproductive wastage is a biologic factor of major importance in differentially influencing fertility as realized or expressed.

Finally—and because this factor has never been adequately ascertained and is most difficult to determine—the part played by contraceptive efforts in influencing fertility is subjected by Pearl to as close analysis as circumstances would allow. The evidence available has been marshaled in impressive fashion. Although future

1. Pearl, Raymond: The Natural History of Population, New York, Oxford University Press, 1939.

additional information may lead to entirely different conclusions, Pearl's present views seem to be based squarely on the evidence presented. "One consistent broad result emerges," he says. "It is that if it were not for the effect of contraceptive efforts and the practice of criminal abortion, together with correlated habits as to postponement of marriage, there would apparently be little or no significant differential fertility as between economic, educational or religious classes of urban American married couples. In the absence of these forces the weight of the evidence as a whole is that all these socially differentiated classes would manifest about the same degree of fertility (with some possible reservations regarding the lowest educational classes). There would probably be some small residual differences, but they would not be great enough to worry any person of a realistic, practical cast of mind." This conclusion, better documented than most of similar nature, furnishes no surprise. The question whether, in essence, this differential represents a biologic phenomenon with biologic purposes or whether it can and should be altered by conscious human effort, Pearl wisely leaves unanswered.

The differential rates of fertility vary not only as between economic or social groups but also along geographic and genetic lines. It is noteworthy in this connection, however, that the greatest percentage decline in birth rates in the last third of a century has occurred predominantly in those countries having the highest previous birth rates. Likewise, the highest birth rates are now, with few exceptions, appearing in those geographic regions having the smallest population-area densities.

Whatever the relative importance of the factors influencing reproductive patterns in this country, the main facts are readily obtainable. Roughly, from 23 to 40 per cent of the women bearing products of conception in 1930 were primiparas, an obviously high proportion when viewed from the angles of race survival and population growth. Furthermore, a definite though not now precisely ascertainable proportion of these primiparas will never bear any more children. It is evident, as Pearl says, that unless a woman bears more than one child in her lifetime she is not adequately reproducing even herself, to say nothing of her family (self and consort) or her strain. If in a given year a woman produces her fourth living child, she may be regarded as having adequately reproduced, Pearl says. When the adequate reproducers, as so defined, were compared with all women who actually reproduced in the years 1920 and 1930 (on a live birth basis), little difference in the ratios of the two groups was observed. While at first surprising, in view of the lowered birth rates between these two periods, this can be explained, he believes, by the drop in the percentage of women potentially capable of being mothers who actually became mothers in these same years, thus tending to keep the ratio more constant. To the biologist this would seem to indicate that in the population of the United States, at least, there has been no significant impairment of innate reproductive capacity in recent years, if ever, nor any serious alteration of average parity performance among the women in the population who actually reproduced at all.

In general, Pearl's analysis of the factors influencing reproductivity seems to confirm those who believe that the rapidly falling birth rate is a reflection of social, economic and other extraneous factors rather than an innate biologic phenomenon.

Current Comment

SUPREME COURT ACTS ON APPEAL FROM PROCTOR DECISION

On October 23 the Supreme Court of the United States indicated that it would not now pass on the suit brought by the Department of Justice charging the American Medical Association, through various officials and also some physicians and hospitals of the District of Columbia, as well as other medical societies, with conspiracy to violate the Sherman antitrust law by activities against Group Health Association, Inc., of Washington, D. C. The Department of Justice had appealed directly to the Supreme Court from the decision rendered by Justice Proctor of the District Court for the District of Columbia. Attorneys for the American Medical Association did not oppose this attempt by the Department of Justice.

Commenting on the decision, the Washington *Post* said:

A PROPER SETBACK

At some future date the Supreme Court may find it desirable to review the government's anti-trust case against the American Medical Association and the District Medical Society. The Department of Justice appears determined to fight Judge Proctor's decision to the last ditch. And the medical profession would certainly carry the dispute to the Supreme Court if the Proctor opinion should be overruled in the Court of Appeals.

For the present, however, the Supreme Court has quite properly declined to review the case. It sees no reason for departure from the customary judicial procedure. No constitutional issue is involved in the charges against the medical association.

The case turns merely upon interpretation of the anti-trust laws. The Department of Justice is attempting to stretch the Sherman act to provide protection for the Group Health Association against alleged restraints on the part of the organized medical profession.

Should the Supreme Court set a precedent of accepting appeals directly from the federal district courts, where no constitutional issue is involved, it would soon be overburdened with litigation. The statute giving constitutional cases a right of way to the highest tribunal makes it all the more important for the court to maintain a rigid check on other petitions for review of less vital or complicated issues.

There are many indications that the Anti-Trust Division has been unduly excited over the idea of prosecuting the medical association for alleged restraint of trade. In effect,

the Supreme Court has sustained this criticism. It found nothing in the Anti-Trust Division's petition to justify singling out this case for special attention. If the division insists upon clinging to its strained interpretation of the anti-trust laws, it will at least have to rely upon the customary procedure for final judicial clarification.

A TESTIMONIAL TO EVARTS GRAHAM

As indicated in our news columns, Dr. Evarts Ambrose Graham, Bixby professor of surgery at Washington University School of Medicine, St. Louis, was recently honored by the creation of a lectureship in his name. His contributions to the knowledge of physiology and surgery through his work on the pleura, the lung and the biliary tract are among the noteworthy contributions of the last twenty years. Moreover, his influence, through the accomplishments of his students, is worldwide. The announcement of the establishment of a Graham Lectureship to be given annually in St. Louis is a suitable recognition of his interest in education. Through this event Dr. Graham's influence in the advancement of scientific surgery will be prolonged.

POLIOMYELITIS IN THE EASTERN COTTON RAT

Successful transmission of the Lansing strain of poliomyelitis virus to the eastern cotton rat has been recently reported by Armstrong[1] from the National Institute of Health. The strain has been carried in series through seven cotton rat transfers, and animals of the eighth transfer had begun to develop symptoms at the time of reporting. Paralysis of the flaccid type developed in all. This animal is not vicious, multiplies readily in captivity, and in view of the probable interference with the importation of monkeys during the war may prove invaluable in continuing experimental investigations on infantile paralysis.

Association News

MEDICINE IN THE NEWS

The seventh season of broadcasting by the American Medical Association over the facilities of the National Broadcasting Company and affiliated stations opens Thursday November 2 at 4:30 p. m. eastern standard time (3:30 central standard time, 2:30 mountain time and 1:30 Pacific time). The title of the program will be Medicine in the News.

True to their title, the programs will consist of dramatizations based on what is happening in the world of medicine. Each program will include a principal news item from THE JOURNAL or some other reputable medical source or from *Hygeia*. This will be followed by one or more high lights on current medical news. Each program will close with a question of the week drawn from the question and answer correspondence of *Hygeia*. A question will be asked each week and answered the following week.

Since the program will be based on events as they proceed, it will be impossible to announce program topics in advance. Each program will be developed within the week immediately preceding its appearance and in part, perhaps, the programs will often be developed within forty-eight hours of their broadcasting.

As heretofore, this is a sustaining program made possible through the cooperation of the National Broadcasting Company. A sustaining program brings no revenue to any radio station or to the network. Therefore radio stations, except those owned and operated by the National Broadcasting Company, are not obligated to broadcast the program. State and county medical societies should express interest in the program by letter or personal interview with the manager of the local radio station. Such evidence of local interest may be the deciding factor in broadcasting the program locally.

Following is a list of the radio stations affiliated with the Blue network of the National Broadcasting Company. This is a list of stations to which the program is available, not a list of stations which are certain to broadcast the program. A list of stations announcing intention to broadcast the program will be published in a later issue of THE JOURNAL.

Basic Blue Network

WBAL	Baltimore
WBZ	Boston
WICC	Bridgeport, Conn.
WEBR	Buffalo
WMT	Cedar Rapids, Iowa
WENR	Chicago
WLS	Chicago
WHK	Cleveland
KSO	Des Moines, Iowa
WXYZ	Detroit
WOWO	Fort Wayne, Ind.
WREN	Kansas City, Mo.
WTCN	Minneapolis
WJZ	New York
WFIL	Philadelphia
KDKA	Pittsburgh
WEAN	Providence, R. I.
WHAM	Rochester, N. Y.
WBZA	Springfield, Mass.
KWK	St. Louis
WSYR	Syracuse, N. Y.
WMAL	Washington

Basic Blue Supplementaries

WABY	Albany, N. Y.
WELL	Battle Creek, Mich.
WBCM	Bay City, Mich.
WLEU	Erie, Pa.
WFDF	Flint, Mich.
WIBM	Jackson, Mich.
WJTN	Jamestown, Va.
WJIM	Lansing, Mich.
WNBC	New Britain, Conn.
WMFF	Plattsburg, N. Y.
WRTD	Richmond, Va.
KMA	Shenandoah, Iowa

Pacific Coast Blue Network

KECA	Los Angeles
KEX	Portland, Ore.
KFSD	San Diego, Calif.
KGO	San Francisco
KTMS	Santa Barbara, Calif.
KJR	Seattle
KGA	Spokane

Blue Southwestern Group

KGKO	Dallas-Fort Worth
KXYZ	Houston, Texas
KTOK	Oklahoma City

Blue Southern Group

WAGA	Atlanta, Ga.
WJBO	Baton Rouge, La.
WSGN	Birmingham, Ala.
KTHS	Hot Springs, Ark.
WMPS	Memphis, Tenn.
WDSU	New Orleans

Blue Mountain Group

KVOD	Denver
KFEL	Denver
KLO	Ogden, Utah
KUTA	Salt Lake City

Basic Supplementaries (Optional Red or Blue)

WSAN	Allentown, Pa.
WRDO	Augusta, Me.
WLBZ	Bangor, Me.
WGKV	Charleston, W. Va.
WLW	Cincinnati
WSAI	Cincinnati
WBLK	Clarksburg, W. Va.
WCOL	Columbus, Ohio
WING	Dayton, Ohio
WEBC	Duluth, Minn.
WGBF	Evansville, Ind.
WGL	Fort Wayne, Ind.
WOOD	Grand Rapids, Mich.
WKBO	Harrisburg, Pa.
WGAL	Lancaster, Pa.
WIBA	Madison, Wis.
WFEA	Manchester, N. H.
KYSM	Mankato, Minn.
WTAR	Norfolk, Va.
WCOA	Pensacola, Fla.
KROC	Rochester, Minn.
KELO	Sioux Falls, Iowa
KSOO	Sioux Falls, Iowa
KFAM	St. Cloud, Minn.
WBOW	Terre Haute, Ind.
WSPD	Toledo, Ohio
KANS	Wichita, Kan.
WBRE	Wilkes-Barre, Pa.
WORK	York, Pa.

Other Chicago Stations

WCFL	Chicago

Southeastern Group

WCSC	Charleston, S. C.
WSOC	Charlotte, N. C.
WIS	Columbia, S. C.
WFBC	Greenville, S. C.
WPTF	Raleigh, N. C.

North Mountain Group

KGHL	Billings, Mont.
KIDO	Boise, Idaho
KGIR	Butte, Mont.
KPFA	Helena, Mont.
KSEI	Pocatello, Idaho
KTFI	Twin Falls, Idaho

South Mountain Group

KOB	Albuquerque, N. M.
KTSM	El Paso, Texas
KGHF	Pueblo, Colo.

California Valley Group

KERN	Bakersfield
KMJ	Fresno
KFBK	Sacramento
KWG	Stockton

Additional to Pacific Networks

KMED	Medford, Ore.
KTAR	Phoenix, Ariz.
KVOA	Tucson, Ariz.

Special Hawaiian Service

KGU	Honolulu

Special Cuban Service

CMX	Havana

Canadian Service

CBF	Montreal
CBM	Montreal
CFCF	Montreal
CBL	Toronto
CBK	Watrous, Sask.

Florida Group

WJAX	Jacksonville
WLAK	Lakeland
WIOD	Miami
WFLA-WSUN	Tampa

Northwestern Group

KFYR	Bismarck, N. D.
WDAY	Fargo, N. D.

Individual Supplementaries

KGNC	Amarillo, Texas
KFDM	Beaumont, Texas
WAPO	Chattanooga, Tenn.
KRIS	Corpus Christi, Texas
WROL	Knoxville, Tenn.
WALA	Mobile, Ala.
KOAM	Pittsburg, Kan.
KGBX	Springfield, Mo.
KRGV	Weslaco, Texas

Mid-South Group

WAVE	Louisville, Ky.
WSM	Nashville, Tenn.

1. Armstrong, Charles: The Experimental Transmission of Poliomyelitis to the Eastern Cotton Rat, Sigmodon Hispidus Hispidus, Pub. Health Rep. 54: 1719 (Sept. 22) 1939.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

CALIFORNIA

Funds for Cancer Research.—The University of California has received $27,166 in gifts for cancer research by Ernest O. Lawrence, Ph.D., professor of physics and director of the radiation laboratory, it was announced October 5. The U. S. Public Health Service gave $23,000 for cancer work under the provisions of the National Cancer Institute Act and the Rockefeller Foundation gave $4,166. Other donations included $5,000 by the General Education Board, New York, for the Institute of Child Welfare; $3,000 for research on sylvatic plague at the Hooper Foundation by the Rosenberg Foundation; $900 to the Institute of Child Welfare by the Josiah Macy Jr. Foundation, and $3,750 for research by Dr. Herbert M. Evans on hormones, by the Rockefeller Foundation.

Southern California Medical Association.—The one hundred and first semiannual convention of the Southern California Medical Association will be held at the Samarkand Hotel, Santa Barbara, November 3-4. The guest speakers will be Drs. William Edward Chamberlain, professor of radiology and roentgenology, Temple University School of Medicine, Philadelphia, and Frank J. Heck, hematologist at the Mayo Clinic, Rochester, Minn. They will discuss respectively "Pitfalls in X-Ray Diagnosis" and "Treatment of Pernicious Anemia and the Iron Deficiency Anemias." Other speakers will include:

Dr. Harold E. Crowe, Los Angeles, Short Hospitalization for Fractures.
Dr. Ralph V. Byrne, Los Angeles, Surgical Concepts of Hyperthyroidism.
Dr. James Norman O'Neil, Los Angeles, Intraperitoneal Rupture of the Urinary Bladder as Encountered by the General Surgeon.
Dr. Pierre P. Viole, Los Angeles, Use of Human Convalescent Scarlet Fever Serum in Streptococcic Infection of the Ear, Nose and Throat.
Dr. Louis E. Martin, Los Angeles, Serum Therapy versus Sulfapyridine Therapy in Pneumonia.
Dr. William P. Thompson, Los Angeles, The Apparent Benignity of Rheumatic Fever in Southern California.
Dr. Maurice P. Foley, Los Angeles, Present Day Concepts in the Treatment of Liver Disease.
Dr. Charles H. Pettet, Los Angeles, Acute Abdominal Pain in Childhood.

There will be a symposium on hematology and one on intestinal obstruction.

DELAWARE

Society News.—Dr. Kenneth M. Corrin discussed the incidence of syphilis before the New Castle County Medical Society in Wilmington October 17. Dr. Norman L. Cutler showed a moving picture on ophthalmology and Drs. Oscar N. Stern and Junius A. Giles Jr. presented a case of placenta praevia.

State Hospital Observes Anniversary.—The Delaware State Hospital celebrated its fiftieth anniversary and dedicated its new chapel September 28. Included among the speakers was Dr. Edward A. Strecker, professor of psychiatry, University of Pennsylvania School of Medicine, Philadelphia, whose address was entitled "Social Implications of Psychiatry."

IDAHO

State Medical Election.—Dr. Abram M. Newton, Pocatello, was chosen president-elect of the Idaho State Medical Association at the annual meeting in Boise August 23-26. Dr. Fern M. Cole, Caldwell, was installed as president and Dr. Joseph N. Davis, Twin Falls, was elected secretary. The 1940 meeting will be held at Sun Valley.

ILLINOIS

Society News.—Dr. Samuel J. Fogelson, Chicago, addressed the Effingham County Medical Society, Effingham, October 10 on "Treatment of Gastroduodenal Ulcerative Disease Based on Modern Physiology."——The Kankakee County Medical Society was addressed October 12 by Dr. Howard A. Lindberg, Chicago, on the treatment of pneumonia.——At a meeting of the Fulton County Medical Society in Canton October 12 Dr. Leroy H. Sloan, Chicago, discussed "Neurology for the General Practitioner."——Dr. Paul H. Wosika, Chicago, addressed the Will-Grundy County Medical Society in Joliet October 6 on "Auricular Fibrillation."——At a joint meeting of the Rock Island medical and dental societies, Rock Island, October 10 Dr. Frederick B. Moorehead, Chicago, discussed "Use of Elastic Traction in the Management of Jaw Fractures and in Plastic Surgery."——Dr. Frank Deneen, Bloomington, spoke before the Madison County Medical Society in Alton October 6 on "Medical Management of Gallbladder Disease."——At a meeting of the Sangamon County Medical Society in Springfield October 5 Dr. Irvine H. Page, Indianapolis, discussed hypertension.——A symposium on medical economics was presented before the Champaign County Medical Society October 12 by Drs. Edwin S. Hamilton, Kankakee; Harold M. Camp, Monmouth, and Calvin C. Applewhite, U. S. Public Health Service, Chicago.

Chicago

Special Lectures.—Dr. Harry Gideon Wells, professor and chairman of the department of pathology, School of Medicine of the Division of Biological Sciences, University of Chicago, will deliver the fourth Christian Fenger Lecture of the Institute of Medicine of Chicago and the Chicago Pathological Society at the Palmer House November 13. He will discuss "A Neglected Subject, Adipose Tissue." Birdsill Holly Broadbent, D.D.S., director of the Bolton Foundation, Western Reserve University, Cleveland, will present the fourth Frank Billings Lecture of the Thomas Lewis Gilmer Foundation at the Palmer House November 24. The title of the lecture will be "Clinical Significance and a Roentgenographic Method of Measurement of Disturbances in Facial Growth."

Dr. Whitecotton Comes to University of Chicago Clinics.—Dr. George Otis Whitecotton, superintendent of the Stanford University Hospitals, San Francisco, for the last four years, has been appointed to the same position with the University of Chicago Clinics. Dr. Arthur C. Bachmeyer, director of the clinics and associate dean of the Division of Biological Sciences, has been acting as superintendent in addition to his other duties since the resignation of John C. Dinsmore in 1934. Dr. Whitecotton will manage Billings Hospital, Bobs Roberts Memorial Hospital for Children and the Max Epstein Clinic, while the supervision of Lying-In Hospital and the Home for Destitute Crippled Children will continue under other assistants to Dr. Bachmeyer. Dr. Whitecotton graduated at the Stanford University School of Medicine in 1933.

IOWA

Fracture Clinic.—The Iowa State Medical Society will hold a fracture clinic at the Hotel Fort Des Moines, Des Moines, November 8. The morning will be given over to the presentation of cases while the afternoon will be devoted to papers by visiting speakers.

Pneumococcus Study Course.—The state department of health will conduct a pneumococcus study course at the state hygienic laboratory, Iowa City, October 31-November 2. The course is intended primarily for laboratory workers and attending physicians associated with pneumonia typing stations. Funds assigned to the department through the U. S. Public Health Service make it possible to reimburse the registrants for most of the travel and other expenses incident to the course.

Campaign Against Smallpox.—A statewide program against smallpox is under way in Iowa with the cooperation of the committee on child health and protection of the Iowa State Medical Society, the state department of health, county medical societies and lay organizations, according to the *Journal of the Iowa State Medical Society*. At the 1939 session of the state society approval was given to such a campaign on the recommendation of the committee on child health and protection. The actual administration of the vaccine will take place October 30-November 11. About seventy-five of the county medical societies in the state have appointed committees to take charge of the work in their communities, and many of the societies have taken paid advertising in the local newspapers. According to the journal, Iowa for many years has ranked well at the top of the states with the highest rates, the climax being reached in 1938 when 1,170 cases of smallpox were recorded.

MICHIGAN

Course in Diagnostic Roentgenology.—The University of Michigan Medical School, Ann Arbor, announces a postgraduate course in diagnostic roentgenology October 30-November 4. Topics to be considered include the diagnosis of lesions of the lungs and pleura, examination of the heart and great vessels, and diagnosis of diseases of the chest wall, soft tissues of the neck and mediastinal structures. Conducting the course will be Drs. Fred J. Hodges, professor of roentgenology; Vincent C. Johnson and Isadore Lampe, assistant professors, and Hobart H. Wright, instructor.

MINNESOTA

Public Health Association Meeting.—The thirty-third annual session of the Minnesota Public Health Association will be held at the Nicollet Hotel, Minneapolis, November 3, with the Hennepin County Tuberculosis Association acting as host. At the annual Christmas Seal dinner, Dr. James D. Adamson, professor of medicine at the University of Manitoba Faculty of Medicine, Winnipeg, medical director of St. Boniface Sanitorium, St. Vital, Man., and consultant in pulmonary diseases, department of pensions and national health of Canada, will speak on "War and Tuberculosis As We See It in Canada." Dr. Sidney A. Slater, Worthington, president of the Minnesota Public Health Association, will give a memorial address honoring the late Dr. Charles H. Mayo, Rochester, a former president and later honorary president of the Minnesota Public Health Association. Gov. Harold Stassen will speak and greetings will be extended by Dr. Stephen H. Baxter, Minneapolis, president of the Hennepin County Tuberculosis Association. Dr. Frank J. Hirschboeck, Duluth, a member of the state heart committee, is to be toastmaster. Distinguished Service Christmas Seal Awards for 1938 will be presented.

MISSOURI

The Evarts Graham Lectureship.—The twentieth anniversary of Dr. Evarts A. Graham as Bixby professor of surgery at Washington University School of Medicine, St. Louis, was observed with two days of scientific sessions October 11-12. At a dinner, which concluded the celebration, the establishment of the Graham Lectureship was announced. It is hoped that the first of these lectures, which will be given annually, will be delivered in the spring. About forty-five former pupils of Dr. Graham gathered from all parts of the country to attend the meeting. One representative came from Australia and others were prevented from coming by the outbreak of war. A graduate of Rush Medical College, Chicago, class of 1907, Dr. Graham has during his career been given many honors including the Leonard prize of the American Roentgen Ray Society in 1925; a gold medal of the Radiological Society of North America in 1925; a gold medal and certificate of merit of the St. Louis Medical Society in 1927, and a gold medal of the Southern Medical Association in 1933. He was chairman of the Section on General and Abdominal Surgery of the American Medical Association in 1925, president of the St. Louis Surgical Society in 1925 and of the American Association of Thoracic Surgeons in 1928. He has been co-editor of the *Archives of Surgery* since 1920; editor of the *Journal of Thoracic Surgery* since 1931 and is the author of "Empyema Thoracis" and "Diseases of the Gallbladder and Bile Ducts," as well as of many articles on his specialties.

NEW JERSEY

State Society's Clinical Conference.—The Medical Society of New Jersey will present its second Fall Clinical Conference November 9-10 in Jersey City with the Hudson County Medical Society as host. Fifteen hospitals will provide material for clinics in general surgery, general medicine, pediatrics, industrial and traumatic surgery, neurosurgery, bronchoscopy and chest surgery, obstetrics, urology and psychiatry. Clinics will be held in the afternoons at the Jersey City Medical Center. At a dinner at the Carteret Club Friday evening Dr. James F. Norton, Jersey City, will be toastmaster and Dr. Morris Fishbein, Chicago, Editor of THE JOURNAL, will speak on "American Medicine and the National Government."

NEW YORK

Society News.—Dr. Konrad Birkhaug, Bergen, Norway, former associate professor of bacteriology, University of Rochester School of Medicine, addressed the Rochester Academy of Medicine October 4 on "The Use of Sulfanilamide in Experimental Tuberculosis."——Charles S. Baker, legal counsel for the Medical Society of the District of Columbia, Washington, D. C., addressed the Medical Society of the County of Monroe, Rochester, October 17 on health insurance.——Dr. George Draper, New York, addressed the Medical Society of the County of Westchester, White Plains, October 17 on "Observations from the Psychological Panel of Persons Who Develop Peptic Ulcer."

New York City

Faculty Changes at Cornell.—Joseph C. Hinsey, Ph.D., professor and head of the department of physiology at Cornell University Medical College, has been appointed professor and head of the department of anatomy to succeed the late Charles R. Stockard, Ph.D. During the present year he will also be acting head of the department of physiology. William H. Chambers, Ph.D., has been promoted to the rank of associate professor of physiology and Kendrick Hare, Ph.D., to that of assistant professor of physiology. Dr. Hinsey took his doctorate at Washington University, St. Louis, in 1927. He was a member of the faculty of Northwestern University Medical School, Chicago, from 1927 to 1929, when he was appointed associate professor of anatomy at Stanford University School of Medicine, San Francisco. After a year he became professor at Stanford and remained there until his appointment to Cornell in 1936.

Society News.—Dr. Paul Reznikoff delivered a Friday afternoon lecture before the Medical Society of the County of Queens October 6 on "Blood Dyscrasias of Interest to the General Practitioner." Dr. James Alexander Miller spoke October 20 on "Early Diagnosis of Pulmonary Tuberculosis."——Speakers at the first fall meeting of the Medical Society of the County of Kings October 17 were Drs. Burrill B. Crohn, New York, on "Regional Ileitis: Medical Aspects, Surgical Indications"; Byrl R. Kirklin, Rochester, Minn., "Bleeding Lesions of the Intestinal Tract," and Charles W. Mayo, Rochester, Minn., "Carcinoma of the Duodenum, Jejunum and Ileum."——Dr. Benjamin R. Shore Jr. addressed the New York Surgical Society October 11 on "Carcinoma of the Breast."

OHIO

Professor Froehlich Comes to Cincinnati.—Dr. Alfred Froehlich, former professor of pharmacology, University of Vienna, has been appointed pharmacologist to the May Institute for Medical Research of the Jewish Hospital, Cincinnati. Dr. Froehlich is the discoverer of the syndrome that bears his name.

District Meeting in Cleveland.—The Fifth District of the Ohio State Medical Association held its annual meeting in Cleveland October 20. The guest speakers were Drs. Frederick Christopher, Evanston, Ill., on "Treatment of Wounds" and "Carcinoma of the Stomach," and Dr. Samuel A. Levine, Boston, on "Interpretation of a Systolic Murmur" and "Prognosis of Rheumatic Heart Disease."

Postgraduate Day.—The Summit County Medical Society is sponsoring its eighth postgraduate day at the Mayflower Hotel, Akron, November 8 with the following speakers: Drs. Wilber E. Post, professor of medicine, Rush Medical College; Charles B. Puestow, associate professor of surgery, University of Illinois College of Medicine, and George H. Gardner, assistant professor of gynecology, Northwestern University Medical School, all of Chicago.

OREGON

Society News.—Dr. Harold L. Blosser, Portland, addressed the Multnomah County Medical Society, Portland, October 4 on "Social and Economic Problems in Industrial Medicine."——Dr. Roger Anderson, Seattle, addressed the Polk-Yamhill-Marion Counties Medical Society October 10 on "Fractures of the Clavicle and Injuries in the Region of the Shoulder Joint" and on "Fractures of the Leg."——Dr. Conrad A. Loehner, Salem, addressed the Lane County Medical Society September 17 at Cottage Grove on "Barbiturates and Hypnotics."

PENNSYLVANIA

State Medical Election.—Dr. Francis F. Borzell, Philadelphia, was chosen president-elect of the Medical Society of the State of Pennsylvania at the annual meeting in Pittsburgh October 2-5, and Dr. Charles H. Henninger, Pittsburgh, was installed as president. Vice presidents elected were Drs. Charles G. Eicher, McKees Rocks; Ward O. Wilson, Clearfield; Walter J. Stein, Ardmore, and John J. Sweeney, Highland Park. Dr. Walter F. Donaldson, Pittsburgh, was reelected secretary. The 1940 session will be held in Philadelphia.

Philadelphia

Symposium on Pneumonia.—The Philadelphia County Medical Society held a meeting October 11 devoted to the subject pneumonia. Dr. Wheelan D. Sutliff, assistant director, pneumonia control division, bureau of laboratories, New York City Department of Health, spoke on "Application of Pneumococcus Bacteriology and Immunity to the Prevention and Cure of Pneumonia." Drs. John J. Shaw, state secretary of health, and Dale Cook Stahle of the health department staff, Harrisburg, discussed "Pneumonia—the Problem in Pennsylvania"; Charles L. Brown, etiology and diagnosis; Harrison F. Flippin, chemotherapy, and Henry A. Hölle, U. S. Public Health Service, pneumonia as a national problem.

Pittsburgh

Annual Lecture on Diabetes.—The Renziehausen Memorial Lecture, established in 1937 for the advancement of knowledge of diabetes, will be delivered November 13 at Mellon Institute by Dr. Howard F. Root, Boston, on "Complications of Diabetes Mellitus."

Society News.—At a meeting of the Allegheny County Medical Society October 17 the speakers were Drs. John W. Stevenson on "Bicornate Uterus Associated with Pregnancy"; Joseph W. Hampsey, "Masking of Clinical Picture of Acute Mastoiditis During the Administration of Sulfanilamide," and Alfred B. Sigmann, Bridgeville, Pa., "Suppurative Appendicitis and Its Treatment with Alcohol."——Drs. John H. L. Heintzelman and James A. Cowan Jr. addressed the Pittsburgh Academy of Medicine October 10 on "Use of Ethyl Iodide in Chronic Nontuberculous Pulmonary Disorders" and "Delayed Flap in the Repair of Surface Defects" respectively.

WASHINGTON

State Medical Election.—Dr. Homer D. Dudley, Seattle, was named president-elect of the Washington State Medical Association at the annual meeting in August and Dr. Warren B. Penney, Tacoma, was installed as president. Dr. James G. Matthews, Spokane, was elected vice president and Dr. Vernon W. Spickard, Seattle, was reelected secretary. The 1940 meeting will be in Tacoma.

WISCONSIN

State Society Award to Dr. Johnson.—The State Medical Society of Wisconsin presented its fifteenth annual Council Award to Dr. Fred G. Johnson, Iron River, at the annual session in Milwaukee in September. In his citation Dr. Stephen E. Gavin, Fond du Lac, chairman of the council, observed that Dr. Johnson has been for thirty-nine years a family physician serving a scattered population over a large area. His services to medicine, as cited by Dr. Gavin, include having been twice president of a county medical society, president of the district medical society, nine years a councilor of the state society, seven years a preceptor of the University of Wisconsin Medical School and a collaborator in establishing and conducting the first tuberculosis sanatorium in Wisconsin. Dr. Johnson was born in 1872 and graduated from Rush Medical College, Chicago, in 1900.

HAWAII

New Director of Mental Hygiene.—Dr. Edwin E. McNiel, Honolulu, has been appointed director of the bureau of mental hygiene and in charge of the mental hygiene clinic under the board of health of Hawaii.

PHILIPPINE ISLANDS

Meeting at Canacao Hospital.—The U. S. Naval Hospital at Canacao entertained the senior class and the faculty of the University of the Philippines College of Medicine August 14. Papers were presented by Lieut. Alton C. Abernethy, Cavite, on "Lymphogranuloma Venereum" and Lieut. Comdr. Charles F. Flower, Cavite, "Fracture Dressings." Capt. Joseph J. A. McMullin and the hospital staff were hosts. Captain McMullin is assistant adjunct professor of surgery at the medical school in Manila.

GENERAL

Fellowships for Cancer Research Available.—The Finney-Howell Research Foundation, Inc., announces that all applications for fellowships for next year must be filed in the office of the foundation by Jan. 1, 1940. Applications received after that date cannot be considered for 1940 awards, which will be made the first of March. Fellowships carrying an annual stipend of $2,000 are awarded for the period of one year with the possibility of renewal up to three years; when deemed wise by the board of directors, special grants of limited sums may be made to support the work carried on under a fellowship. Additional information may be obtained from the foundation, 1211 Cathedral Street, Baltimore.

Air Hygiene Meeting.—The fourth annual meeting of the Air Hygiene Foundation will be held at the Mellon Institute, Pittsburgh, November 14-15. Among features of the program will be a symposium on absenteeism in industry with Dr. Anthony J. Lanza, New York, presiding; a forum designed to show that "Industrial Health Pays Double Dividends"; reports on the foundation's engineering research at Harvard University by Philip Drinker, Ch.E., Boston; reports of medical research at Saranac Lake, N. Y., by Dr. Leroy U. Gardner, and at the University of Pennsylvania by Drs. Eugene P. Pendergrass and Eliot R. Clark, Philadelphia. About 200 industrial firms are affiliated with the foundation.

Dermatologists to Meet in Philadelphia.—The second annual meeting of the American Academy of Dermatology and Syphilology will be held at the Bellevue-Stratford Hotel, Philadelphia, November 6-8. The sessions will consist of symposiums, courses lasting from one to four hours and round table discussions. Dr. Cornelius P. Rhoads, New York, will be the guest speaker Monday November 6 on "Vitamin B Complex." Tuesday will be devoted to clinical presentations at Jefferson Medical College of Philadelphia. There will be symposiums on syphilis, allergy, pharmaceutical therapeutics, physiology and chemistry of the skin. Dr. Paul A. O'Leary, Rochester, Minn., is president and Dr. Earl D. Osborne, Buffalo, secretary of the academy.

Special Society Election.—Dr. Frank R. Spencer, Boulder, Colo., was named president-elect of the American Academy of Ophthalmology and Otolaryngology at the annual session in Chicago October 8-13. Dr. Spencer will succeed Dr. Frank E. Brawley, Chicago, who becomes president January 1. Vice presidents elected were Drs. Arthur W. Proetz, St. Louis; Joseph F. Duane, Peoria, Ill., and Charles T. Porter, Boston. Dr. William P. Wherry, Omaha, was reelected executive secretary and Dr. Erling W. Hansen, Minneapolis, was made secretary for public relations, succeeding Dr. Ralph A. Fenton, Portland, Ore., resigned. The academy voted to sponsor a new venture in graduate medical education. Plans were made for the establishment of reading courses for hospital residents and interns planning to specialize in ophthalmology and otolaryngology.

Changes in Status of Licensure.—The California State Board of Medical Examiners reported the following actions taken at its regular meeting July 10-13:

Dr. Sharon M. Atkins, Los Angeles, license restored and placed on probation for five years.

Dr. Woodward B. Mayo, Burbank, Calif., certificate restored and placed on probation for five years.

Dr. Harold E. Morrison, Morro Bay, Calif., certificate restored.

Dr. Jesse C. Ross, Los Angeles, license restored.

Dr. Shuah Milton Mann, National City, Calif., license revoked July 13 following charges of "aiding and abetting" and of illegal operation.

Dr. Virgil J. McCombs, Los Angeles, license revoked following charges of alleged use of fictitious name and "aiding and abetting."

Dr. James T. Murray, Los Angeles, license revoked on charges of alleged narcotic addiction.

Dr. Walter M. Thorne, Fresno, Calif., license revoked on a charge of alleged narcotic addiction.

Dr. Donaciano Trevino, San Bernardino, Calif., license revoked following his conviction of violation of the Harrison Narcotic Act.

Dr. James Cushing Weld, Los Angeles, license revoked following charges of "aiding and abetting" and the use of a fictitious name.

Dr. Orel Alvin Welsh, Ventura, Calif., license revoked following his conviction on charges of performing an alleged illegal operation.

The New York State Board of Medical Examiners recently reported the following action:

Dr. Charles I. Gordon, formerly of Brooklyn, license revoked June 16.

The Virginia State Board of Medical Examiners announces the following:

Dr. J. Burton Nowlin, Lynchburg, Va., license reinstated June 21.

More Swindlers.—A man named George W. Remick, who often calls himself Dr. Remick, recently represented himself as a salesman for laboratory equipment firms and without authority has collected accounts owed to these firms. He has been traveling in California, Arizona, Texas, Colorado and New Mexico, posing as a salesman for the Jones Metabolism Equipment Company of Chicago and the Bristow Company of Los Angeles, among others. It is said that Remick approached a laboratory in El Paso, Texas, with the story that he had an option on some laboratory equipment which was being returned from China. Remick informed the laboratory physician that this apparatus was held by the customs office for fees which would have to be paid before it could be released and induced the doctor to give him a check to be paid to the customs office. Nothing further was heard from Remick and the customs office knew nothing of the occurrence. Remick is about 43 years old, about 5 feet 9 inches tall, weighs 190 pounds, has a fair complexion, light sandy hair with slight baldness and blue eyes. He is said to be talkative, late to appointments, fond of flashy clothes, usually with unmatched coat and trousers.——Further information has been furnished by the Chicago Better Business Bureau concerning a man who claimed to represent the "Hayes Company" of Indianapolis, reported in THE JOURNAL October 7, page 1423. The Indianapolis Better Business Bureau reported that several complaints had been received about this man, all from the Chicago area, and that no firm of Hayes and Company could be located in Indianapolis. The man appeared to be about 55 years old, 5 feet 8 inches tall and weighed about 140 pounds, it is reported. He claimed that he had bought

out a surgical supply house in Indianapolis for "almost nothing" and wanted to sell as much as possible so that he would not have to move much stock to Chicago, where he intended to start a business.

CANADA

Balfour Lecture at Toronto.—The fourteenth annual lecture under the Donald C. Balfour Lectureship in Surgery of the University of Toronto Faculty of Medicine, Toronto, was delivered October 11 by Prof. George Grey Turner, London, England, on "Transplantation of the Ureters."

Society News.—Dr. William E. Campbell, Winnipeg, was elected president of the Manitoba Medical Association at the annual meeting in September. Drs. Edward D. Hudson, Hamiota, and Hubert D. Kitchen, Winnipeg, were elected vice presidents and Dr. Clarence W. MacCharles, Winnipeg, secretary.

CORRECTION

Sigmund Freud's Age.—THE JOURNAL, October 14, page 1494, stated that Sigmund Freud died Sept. 22, 1939, in his eighty-third year. Dr. Freud was born May 6, 1856, and was therefore at the time of his death in his eighty-fourth year. Dr. Freud died about 3 a. m. September 23, London time, which would place his death before midnight New York time and, thus figured, would make the date of death there September 22.

Government Services

Increase in Salary for CCC Physicians

Since the receipt in this office of the item entitled, "Physicians Wanted for the CCC," published in THE JOURNAL, October 14, page 1500, the office of the surgeon of the Eighth Corps Area, Fort Sam Houston, Texas, has received instructions from the War Department to the effect that the salaries of all physicians on duty with the CCC would be $3,200 per year instead of $2,600 per year.

New Manager of Veterans Hospital

Dr. Grover C. Daniel, clinical director of the Veterans Administration Facility, Walla Walla, Wash., has been appointed manager effective October 1. He had been acting manager since the recent death of Dr. Orville D. Wescott, manager. Dr. Daniel was born in Olioville, Ky. He served in the army medical department from September 1917 until December 1918, and the following year graduated at Loyola University School of Medicine, Chicago.

Examinations for Government Positions

The U. S. Civil Service Commission announces open competitive examinations for the following positions: senior medical officer with a salary of $4,600 a year; medical officer, $3,800; associate medical officer, $3,200. Applicants for the grade of senior medical officer must qualify in aviation medicine, cardiology or cancer research; for the other positions applicants may choose among fourteen optional branches. The registers resulting from these examinations will be used for filling vacancies in the U. S. Public Health Service, the Veterans' Administration, the Indian Service and the Civil Aeronautics Authority. Applicants must have graduated from recognized medical schools. Those applying for the position of senior medical officer must not have passed the fifty-third birthday; those for medical officer the forty-fifth and those for associate medical officer the fortieth. Dates for filing applications are as follows: November 13 if received from states other than those in the Far West as listed; November 16 if from Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington and Wyoming; March 11, 1940, if from points in Alaska south of the Arctic Circle; May 13, 1940, if from points in Alaska north of the Arctic Circle. Application forms may be obtained from the secretary of the Board of Civil Service Examiners at any first class post office, from the U. S. Civil Service Commission, Washington, D. C., or from the U. S. Civil Service district office in any of these cities: Atlanta, Boston, Chicago, Cincinnati, Denver, New Orleans, New York, Philadelphia, Seattle, St. Louis, St. Paul, San Francisco, Honolulu, Balboa Heights, Canal Zone, and San Juan, Puerto Rico.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Sept. 30, 1939.

London Hospitals in Wartime

In previous letters it has been stated that, for the treatment of the numerous civilian casualties expected from air raids, London has been divided into ten sectors radiating from the center. The great hospitals are situated at the apexes of the sectors and become casualty clearing stations, while at the periphery, that is in the country, are the "base hospitals" to which the casualties will be evacuated for greater safety. The latter are hospitals or institutions which have been converted to this use. A description of the largest one, situated at some distance from London, illustrates typically the gigantic preparations which have been made. The hospital normally accommodated 2,200 mental patients, who were transferred to other institutions, but the malarial unit for the treatment of dementia paralytica was maintained, so that it would be available for the treatment of neurosyphilis. As the advanced base hospital for St. Thomas's and King's College hospitals it provides 2,560 beds. The big day room has been converted into three operating rooms, each with two tables, and there are smaller operating rooms elsewhere. Adjoining the operating rooms are resuscitation rooms, each with about twenty beds, for which a team has been trained. The former entertainment hall is a Red Cross dispensary.

For the treatment of the civilian casualties the hospital has been divided into five units, which to facilitate direction have been given different color schemes. Four of these units deal entirely with the care of the sick and wounded. Each is controlled by a surgeon on the staff of King's College Hospital, and his staff consists of three surgeons, one physician, two anesthetists and a number of medical officers. The fifth unit deals with the reception and distribution of cases and is in charge of a physician of King's College Hospital. Each of the four treatment units will have one "take-in" day out of every four and will receive the bulk of the admissions on that day, though the other units will also be admitting, particularly to the wards earmarked for specialist treatment.

The surgeon in charge of the unit organizes the whole of the work and himself operates as he deems necessary. He reports to the medical superintendent and to the physician and surgeon respectively in charge of the medical and surgical division. The local medical practitioners will also be employed for sessions of two and one-half hours daily. The nurses attached number 700 and have been drafted from London hospitals. Medical students from the London hospitals have been received and a considerable amount of instruction, including lectures, is given. It deals with the kind of cases expected: injuries of the head, chest and abdomen, fractures, burns, wound infections, gas casualties and war neuroses. Even a perambulating museum, which goes in turn to the three hospitals of the sector, has been arranged. This vast disorganization of the peacetime medical service and reorganization of it into a wartime service has been accomplished with celerity and efficiency.

Almost all the London consultants have been mobilized or are on call, and most of them have ceased all other work. But, as seems almost inevitable under the improvised conditions of war, the rates of remuneration have been too crudely laid down. The younger men suddenly find themselves with incomes they could not have expected for years, but the older established ones, with heavy financial obligations, sometimes

are faced with bankruptcy. A plan has been prepared to allow senior men who wish to resume private work to exchange their full time work for part time, so that they can continue their private work.

Prof. G. R. Murray Is Dead

Dr. George Redmayne Murray, emeritus professor of medicine in Victoria University, Manchester, and the discoverer of the thyroid treatment of myxedema, has died. Educated at Cambridge, he graduated with first class honors in the Natural Science Tripos in 1886. He then went to University College Hospital, London, where he had a brilliant career. In 1891 he was appointed pathologist to the Hospital for Sick Children, Newcastle-upon-Tyne, and lecturer in bacteriology, Durham University College of Medicine. He made a great reputation as a teacher and in 1893 was appointed professor of comparative pathology. In 1908 he migrated to Manchester, where he became professor of medicine. His case, which is classic, was published in 1920 in the *British Medical Journal* under the title "The Life History of the First Case of Myxedema Treated by Thyroid Extract."

PARIS

(From Our Regular Correspondent)

Sept. 20, 1939.

Medical Activities of the War

The general opinion of French medical circles is that present war conditions ought not to interrupt the scientific labors of the nation. The limitations placed on medical research by the mobilization of scientific investigators and their assistants and by the curtailment of means of action and work are perhaps partially compensated by the study of special problems caused by the war. Accordingly, all necessary measures have been taken for the continuation of medical activities. The large medical reviews will reduce their editions by about half, either appearing once in every two times or by combining two issues into one. The numerous meetings which were to be held during the autumn have been postponed. However, the large medical societies such as the Société médicale des hôpitaux de Paris, the Société de médecine de Paris and the Société des chirurgiens de Paris have decided to meet as usual; some have even anticipated their regular date. The Académie de médecine met September 12. Instead of the few members usually present the attendance was almost complete. Not only the small body that "holds the fort" during the vacations was present but all who happened to be in Paris came spontaneously, glad to meet one another in these grave times. Many of the academic staff were in uniform, either already assigned to military duties or mobilized in the hospitals with which they are associated. Some of those absent had already been called to the front. Those past the age of military service have for the most part been assigned to special centers.

War increases the number of cases of certain rare maladies. It brings about an increase of wounded with numerous practical problems. It is well known what progress in surgery resulted from the vast clinical experiences of the World War. For that reason the Académie de chirurgie has likewise decided to resume its meetings. Specialized medical centers will be organized, such as the cardiologic, psychiatric, tuberculous, syphiligraphic, tropical diseases and neurosurgery. The heads of these centers have not been publicly named, but it is easy to guess them by noting simply the most competent men in each specialty. The functions of these centers will be manifold. They will have to take care of patients who fall within their specialty and seek methods of treatment best adapted to war diseases. Once cured, these patients will be rehabilitated. It will be necessary to determine their exact status and the extent to which participation in military service caused or aggravated their disease, to fix their degree of invalidism—that is to say, the pension to which they will be entitled—to follow up the rehabilitated and to prepare their readjustment to civil life so that they may be least burdensome to their community. In short, these specialized centers will at the same time be centers of instruction for the physicians at the front and for the students who pursue their studies in uniform.

Scientific Meetings

Hédon and Loubatières pointed out before the Académie des sciences that the quantities of hydrochloric acid exhaled and those of oxygen utilized were normal or even somewhat below normal, tested out in the type of experimental diabetes discovered by Young and determined in the dog by repeated injections of hypophysial extract (anterior lobe) in the peritoneal cavity. These quantities correspond to an expenditure of energy less than 2.5 kilocalories an hour. Young's experimental diabetes differs, accordingly, from the one determined after complete extirpation of the pancreas by the absence of a rise in the basal metabolism. There is also a connection between certain organic disorders, particularly of the central nervous system, noted in those who occupy buildings made of reinforced cement. The metal framework of these buildings constitutes a veritable box such as Faraday used in one of his experiments and creates a constant vibration with the alternating currents, as Denier demonstrated before the Societé française d'électrologie et de radiologie.

Lian and his collaborators before the Société française d'hématologie presented an optical method of exploring the coagulation of the blood, based on modifications of the optical density of the plasma in the course of its change from fibrinogen to fibrin. The results are recorded by means of a graph of a particular form which indicates the duration, the beginning and the quality of the coagulation.

BERLIN

(From Our Regular Correspondent)

Sept. 6, 1939.

Reorganization of Studies in Chemistry

In the reconstruction of the medical curriculum, the reorganization of the curriculum of chemical studies has been ordered. To provide uniform training in chemistry, an association had been formed already before the World War by the chemical institutes of the universities to conduct examinations and issue certificates. This preliminary examination had to be passed before one could proceed to work on the doctoral thesis. Formerly, no final examination outside the doctoral thesis existed, certifying that the student had completed a chemical program of comprehensive studies. One could call oneself a chemist without having had a thorough training. Now, however, chemical studies have been given uniformity. No definite course of studies is prescribed for the required seven semesters. The determining factor is the degree of thoroughness, the attainment of which depends solely on the aptitude and industry of the student. The gifted student may thus complete his studies within a shorter time than the prescribed period. Success in passing the examination conferring the chemical diploma opens the way for the doctoral candidacy. The new curriculum of chemical studies divides the student's training into two sections: (1) four semesters of inorganic, organic, physical and physicochemical studies culminating in a "preliminary" examination with diploma and (2) three semesters of "deepened training." In this second phase the student is required to select his major study whether in inorganic, organic, general or technical chemistry. It is based on the assumption that the complexity of chemical studies no longer permits uniform attainments in all the branches of chemistry. This specialized training is attested at its conclusion by a preliminary thesis leading to the diploma and is the prere-

quisite for admission to the main examination. Choice of thesis material should be made with a view of continuing it for the doctor's degree. The "chemist with a diploma" is now a new recognized academic degree.

Control of Malignant Tumors in Danzig

Through regulation of the Danzig senate "a labor association for combating malignant tumors" has been organized. This association is to establish principles for educating the population on the prophylactic examinations to be taken at certain intervals, especially by women, on the kinds of examinations and the treatment of those afflicted. Treatment of malignant tumors may be performed only by physicians. Treatment by mail as well as advice offered on how to cure oneself by means of lectures, pamphlets and so on is prohibited. Physicians are required to conform strictly to the principles established by the labor association. Physicians, public health officials and hospitals must officially report all cases of malignant tumors and suspected tumors within six days. Violations are punishable by fines. Every woman 30 years of age and every man 45 years of age may have themselves examined once a year at the expense of the labor association, which in turn is reimbursed by insurance companies.

ITALY

(From Our Regular Correspondent)

Sept. 15, 1939.

Renal Tumors

The Accademia di Scienze Mediche of the Coneglio and Vittorio regions at a recent meeting discussed renal tumors. Professor Bortolozzi discussed the incidence of renal tumors. He showed a preference for Pugliotti's classification, which is a modification of that of Busser and Obersimmer and is based on morphologic histology. Professor De Gironcoli discussed the symptoms, diagnosis and treatment of renal cancer. Professor Opocher called attention to the importance of urologic disorders for gynecologists. There are so many anatomic, embryologic and physiopathologic interferences between the urinary tract and the female internal genital organs that the conception on the existence of a urologic branch of gynecology is justified. The speaker discussed pyelitis and hydronephrosis in pregnancy, and the reciprocal influence between pregnancy and renal cancer, the coexistence of renal tumors with those of the uterus or of the ovary, vaginal substances from renal carcinoma, metastases to the kidney from chorionepithelioma of the uterus and the possible changes of sexual characters from adrenal tumors.

Renal Complications from Blood Transfusions

Professor Papa, of Naples, in a reunion of the Società Napolentana di Chirurgia, which was held recently, reported results of clinical and experimental work on the behavior of renal functions in blood transfusion which he carried on. He studied the variations of azotemia, the elimination of urea and amino acids through the urine and the possible appearance in the urine of substances which could indicate pathologic involvement after blood transfusion with compatible blood. A patient who had repeated transfusions died from acute renal insufficiency. The speaker found by experiments that the alterations of the renal functions which develop from repeated blood transfusion are due to renal alterations which can be seen during microscopic studies on the kidney. The syndrome which is due to renal blockage may develop suddenly or progressively. The acute syndrome probably develops from spasm of the renal arteries. The chronic syndrome probably develops from a reaction of the kidney to toxic substances which cause alterations of the tubuli and of the glomeruli of the structure.

History of Forceps

Professor Gall of Trieste recently reviewed before the Associazione Medica of Trieste the history of forceps, which were invented by obstetricians of the Chamberlen family, which family used them only when they could obtain large amounts of money from a patient. Roonhuysen, an obstetrician from the Netherlands, bought the instrument from Ugo Chamberlen also with a mercenary purpose. Later Chamberlen bought it back from Roonhuysen. Mauriceau, a Parisian obstetrician, was accused in the poem called "Luciniade" of having retarded the use of forceps in France, but the accusation was false.

Policy of Authorities on Sanitation

The under secretary of state of internal affairs recently lectured before a meeting of the house of representatives. He said that improvement of the race depends on sanitation, the problems of which cannot be solved by bureaucratic centers but by the combined work of large groups of technicians and physicians, especially municipal physicians who are well informed on the problems of local public health. The members of the ministry of internal affairs resolved to elevate the educational and technical standards of officers of public health who work in the various branches of social medicine, especially municipal physicians who are concerned with the prevention and control of diseases. The educational standards of midwives have been elevated also. Administration of antidiphtheric vaccination is compulsory.

Promotion of Assistant University Teachers

The head of the Public Education centers requested from the members of the national board of public education the framing of a bill which concerns assistant teachers in universities. The bill was approved. It provides that assistant teachers in universities who entered by winning a contest or else those who have worked satisfactorily for five years can be either promoted to the position of regular professors in colleges or may be appointed to technical positions in offices of the government.

STOCKHOLM

(From a Special Correspondent)

Sept. 26, 1939.

Artificial Sunlight for Miners

What is certainly unique in Sweden, and probably in the whole of Scandinavia, is a solarium which has been provided by the proprietors of the Boliden mine, whose underground workers can enjoy daylight only on Sundays and for a short daily meal interval from the middle of September to the middle of March. Dr. Johan Pontén, who has played an important part in connection with this solarium, has recently issued a report on its action since it was started in December 1937. The room in which four large quartz lamps and four "sollux" lamps were installed measured 5 by 6 meters and was kept at a temperature of from 25 to 30 C. (77 to 86 F.). After changing their clothing and taking a douche or bath, the men would sit naked in the solarium for three minutes every other day, their eyes protected by special glasses.

Wishing to obtain objective and reliable data concerning the effects of such infra-red and ultraviolet radiation on the miners, Dr. Pontén carried out calcium and phosphorus analyses of the blood on twenty-two healthy miners between the ages of 23 and 47. He found an appreciable rise in the average calcium content of the serum from 9.9 mg. per hundred cubic centimeters before the solarium was opened to 10.5 mg. in March 1938, after the solarium had been in use for three months. Another line of research was to compare the morbidity rates among the workers in the Boliden mine before and after the provision of the solarium. Among the 175 underground workers the sickness rate was 9.7 days per head in 1937 and 8.5 in 1938. In the same period there was a reduc-

tion by 12 per cent in the frequency of "one day diseases" and a reduction by 43 per cent of the catarrhal diseases of the respiratory tract. A questionnaire to which anonymous answers were invited showed that a large proportion of the men considered themselves fitter in many respects since they had enjoyed the benefits of the solarium.

Research on Pellagra

The conviction that pellagra can be considered a foreign disease with no practical interest for Swedes has given place to a suspicion that pellagra may be quite common in mental hospitals. At the Beckomberga Mental Hospital, under the direction of Dr. S. Wohlfahrt, five well defined cases of pellagra have been observed in the course of two years. As for the number of early or abortive forms of this disease, accurate information is lacking, for early pellagra presents such vague signs and symptoms that its distinction from a host of other ill defined ailments is most difficult.

Dr. Erland Mindus, who has for some time paid special attention to a twenty-six bed department for women patients in the Beckomberga Hospital, has recently set himself the task of systematically examining all new cases admitted to this hospital for signs of defective gastric activities. He has supplemented test meals with feces examinations and radiologic examinations, and he has found achylia or hypochylia in about 91 per cent of the women patients recently admitted to the hospital. To test his hypothesis that many of these patients with defective gastric secretion were suffering from the beginnings of pellagra, he divided them into two groups as similar as he could make them, and in both the clinical picture was stamped by lassitude, anorexia, depression, loss of weight, simple anemia, insomnia, amenorrhea, hypesthesia, muscular weakness, restlessness and anxiety or apathy. In other words, the clinical picture was that commonly associated with the term "gastrogenic neurasthenia." The first group was given treatment as for pellagra, a stomach extract with hydrochloric acid, extra rations of meat and eggs and, in some cases, vitamin B preparations. The second group, which served as a control, was given the routine treatment heretofore in vogue for such cases in this hospital. The comparatively satisfactory response of the patients in the first group to the special treatment given them suggests that many, if not most, of them may have been suffering from pellagra in a stage too early for the development of the characteristic cutaneous changes.

The Centenary of Ling, the Father of Swedish Gymnastics

On May 3, 1839, the death occurred of Petter Henrik Ling at the age of 63. He was then at the head of the Central Gymnastic Institute, honored at home and abroad. The son of a poor clergyman, he lost his father at the age of 2 and was brought up in most humble circumstances. He graduated at the University of Lund and continued to study in Uppsala. But he never qualified as a doctor. His gifts as a poet and author were full of promise, but it was in gymnastics that he earned a place in the history of medicine. During the century which has passed since his death there have been countless developments in gymnastics, yet the principles he laid down are held to be as sound today as they were when his forceful personality was behind them. The Central Gymnastic Institute, which he founded, has remained ever since as a school for the teaching of gymnastics in health and disease and it has maintained that high standard which has placed Swedish gymnastics in so prominent a position in the world. He made gymnastics a national movement which, beginning in the schools and soldiers' camps, came to inspire the whole community. Throughout Sweden this year Ling's memory is being paid tribute to, and it is no mere chance that the Swedish government is opening this year an institution for the teaching of the physiology and hygiene of bodily exercises.

At first, the public was inclined to jeer at a man fanatically devoted to the light he followed. But the medical profession took him and his cause seriously, and the Swedish Medical Society honored itself by electing him a member in 1831. He seems to have been as frail of body as he was forceful of spirit. As a young man he was told by his doctor that he was suffering from consumption. After his death the examination proved this diagnosis to have been correct and showed that death was due to malignant disease of the liver. He was subject to violent attacks of coughing and his respiration was labored, but the vitality of his spirit dominated the frailty of his body throughout his life.

Marriages

FRANK M. WARDER, Glasgow, Ky., to Miss Irene Katherine Randolph of Detroit Lakes, Minn., in Rushville, Ind., August 11.

WARREN A. SMITH, Berrien Springs, Mich., to Mrs. Ruth Cameron of Kalamazoo, in South Bend, Ind., in August.

ROBERT GARFIELD RICKERT, Ann Arbor, Mich., to Miss Miriam Irene McCausey of Highland Park, August 22.

ALEXANDER H. SNEDDON to Mrs. Wilma McLaughlin Dugan, both of Cambridge, Ohio, in New York, August 18.

HOWARD PLEAS WHEELER, Georgetown, Texas, to Miss Mary Josephine Davidson of Fort Worth, August 17.

STAMATIS GEORGE VELONIS, Nespelem, Wash., to Miss Helena Stuart Ross at Northampton, Mass., July 8.

HUGH ALFRED WATSON, Queens Village, N. Y., to Miss Almeria Russ at Hendersonville, N. C., July 28.

JOHN KENT FINLEY, Philadelphia, to Miss Margaret Sheehan Gindhart of Ventnor, N. J., September 6.

GEORGE W. SMELTZ, Pittsburgh, to Miss Callie Waldran of Washington, D. C., in Baltimore, August 2.

ALBERT J. TANNY to Miss Rose McDermott, both of Albuquerque, N. M., at Santa Fe, September 5.

JOHN HOGE WOOLWINE JR., Blacksburg, Va., to Miss Frances Wellons of South Roanoke, September 2.

JOHN I. RINNE JR., Anderson, Ind., to Miss Madge Goldman of Marengo, at Seymour, August 31.

GEORGE KENNETH SCHOLL to Miss Dorothy Ophelia Rhea, both of Johnson City, Tenn., August 25.

HARRY ORR VEACH, Los Angeles, to Miss Pauline Manchester of South Pasadena, August 13.

TERENCE ALOYSIUS KEMPF, Omaha, to Miss Frances Anne Rochford of Colon, Neb., August 26.

CARROLL B. SHADDOCK JR., Beaumont, Texas, to Miss Hulda Martha Gaertner of Malone, July 22.

CHARLES H. MOSELY JR., Monroe, La., to Miss Florence Jane Morley of Rayville, August 5.

WILLIAM C. SPRING JR., Glen Ridge, N. J., to Miss Louella Clark of Jefferson, Ohio, in August.

RUSSELL B. WILLIAMS, Downsville, N. Y., to Miss Auvray May Keith of Salem, Va., July 27.

RALPH N. REDMOND, Sterling, Ill., to Miss Katherine Baxter of Cedar Rapids, Iowa, August 1.

FREDERICK J. GRABER, Stockport, Iowa, to Mrs. Gladys B. Hiatt of Toledo, September 2.

CHARLES FREDERIC STONE JR. to Miss Hazel Hart Smith, both of Boston, in September.

WILLIAM CURTIS STIFLER JR. to DR. JEAN EVANS ROSE, both of Baltimore, July 29.

HERBERT KAPLAN, Collegeville, Pa., to Miss Cora Peterman of Limerick, October 7.

BERNARD P. WOLFF, Atlanta, Ga., to Miss Douschka Brown of Marietta, August 3.

ELLIS K. VAUBEL, Dysart, Iowa, to Miss Helen Christenson of Royal, August 18.

PHILIP ROCHE to Miss Susan Foulke Yocom, both of Philadelphia, August 7.

Deaths

Albert Coulson Buckley ✠ Philadelphia; Medico-Chirurgical College of Philadelphia, 1897; professor ot psychiatry, University of Pennsylvania School of Medicine and the Medico-Chirurgical College, Graduate School of Medicine, University of Pennsylvania; associate professor of normal histology at his alma mater, 1899-1908, and associate professor of psychiatry, 1908-1917; member of the American Neurological Association, American Psychiatric Association and the Association for Research in Nervous and Mental Disease; past president of the Philadelphia Psychiatric Association; medical superintendent of the Friends Hospital; served in various capacities on the staffs of the Philadelphia General Hospital and the Philadelphia Orthopedic Hospital; author of "Nursing Mental and Nervous Diseases; aged 66; died, August 17, of pneumonia.

Ernest Charles Dickson ✠ San Francisco; University of Toronto Faculty of Medicine, Toronto, Ont., Canada, 1906; professor of public health and preventive medicine, emeritus, Stanford University School of Medicine, assistant professor of pathology, 1910-1913, assistant professor of medicine, 1913-1918, associate professor of medicine, 1918-1923, professor of medicine, 1923-1926, and later professor of public health and preventive medicine; instructor of pathology and bacteriology, Cooper Medical College, 1908-1910; member of the Association of American Physicians; on the staff of the Stanford University Hospitals; aged 58; died, August 23, of cerebral hemorrhage.

Louis Daniel Englerth ✠ Philadelphia; Jefferson Medical College of Philadelphia, 1914; F.R.C.S., Edinburgh, Scotland, 1919; fellow of the American College of Surgeons; served during the World War; formerly assistant demonstrator of clinical surgery at his alma mater; surgeon to the Frankford, Philadelphia General, and St. Joseph's hospitals and Northeastern Hospital of Philadelphia; consulting surgeon to the Grandview Hospital, Sellersville; aged 50; died, August 16, in the Jefferson Hospital of hypertensive cardiovascular disease.

Frank Henry Hagaman ✠ Jackson, Miss.; Tulane University of Louisiana School of Medicine, New Orleans, 1918; president of the Central Medical Society; member of the Southern Surgical Association and the Southeastern Surgical Congress; fellow of the American College of Surgeons; served during the World War; on the staffs of the Mississippi State Tuberculosis Sanatorium, Sanatorium, and the Mississippi State Charity and the Mississippi Baptist hospitals; aged 43; died, August 19, of injuries received in an automobile accident.

Willis Ellis Hartshorn ✠ New Haven, Conn.; University of Minnesota Medical School, Minneapolis, 1898; clinical professor of surgery, Yale University School of Medicine; member of the New England Surgical Society; fellow of the American College of Surgeons; attending surgeon to the New Haven Hospital; consulting surgeon to the Griffin Hospital, Derby, Grace Hospital, New Haven, and chief of staff of the surgical clinic, New Haven Dispensary; aged 67; died, August 4.

Joseph Francis Ward, Brooklyn; Baltimore University School of Medicine, 1899; served during the World War; past president of the Brooklyn Society of Internal Medicine; for many years a member of the board of managers and also consulting physician and psychiatrist of the Craig Colony, Sonyea; formerly chief of the diagnostic research laboratory of the Victory Memorial Hospital; aged 67; died, August 10.

Andrew Martin Gillen, Brooklyn; Long Island College Hospital, Brooklyn, 1897; member of the Medical Society of the State of New York; honorary surgeon in the police department; chairman of the medical board and chief obstetrician at the Shore Road Hospital; on the staff of the Hospital of the Holy Family and St. Mary's Hospital; aged 64; died, August 15, in the Long Island College Hospital.

William Chester Billings ✠ Medical Director, U. S. Public Health Service, retired, La Canada, Calif.; Harvard Medical School, Boston, 1894; was commissioned an assistant surgeon in the U. S. Public Health Service, Dec. 28, 1898, and was retired as a medical director, Oct. 1, 1933; aged 67; died, August 16.

Flaviano E. Parodi, New York; Regia Università degli Studi di Genova Facoltà di Medicina e Chirurgia, Italy, 1891; member of the Medical Society of the State of New York; fellow of the American College of Surgeons; visiting surgeon to the Columbus Hospital; died, August 23, in the Mount Sinai Hospital.

Hugh Francis Flaherty, Hartford, Conn.; Yale University School of Medicine, New Haven, 1907; member of the Connecticut State Medical Society; past president of the board of health; aged 59; on the staff of St. Francis Hospital, where he died, August 24, of arteriosclerosis and chronic nephritis.

Alice Zelia Patterson-Murphy, Flushing, N. Y.; Boston University School of Medicine, 1896; formerly adjunct professor of anatomy at the New York Medical College and Hospital for Women, New York; aged 64; died, August 21, in Newton Highlands, Mass., of brain tumor.

James L. Shuler ✠ Durant, Okla.; Arkansas Industrial University Medical Department, Little Rock, 1887; secretary and past president of the Bryan County Medical Society; medical director of the Bryan County Hospital; aged 79; died, August 24, in Hobbs, N. M., of chronic nephrosis.

Theodore Chamberlin, Concord, Mass.; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1895; formerly district medical examiner and consulting physician to the Middlesex School and the Concord Reformatory; aged 71; died, August 8.

Jackson Joseph Ayo ✠ Jackson, La.; Tulane University of Louisiana School of Medicine, New Orleans, 1893; superintendent of the East Louisiana State Hospital; member of the state board of medical examiners; for many years parish coroner; aged 70; died, August 18.

Charles Prevost Grayson ✠ Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1881; emeritus professor of laryngology at his alma mater; member of the American Laryngological Association; aged 79; died, August 16, of cirrhosis of the liver.

Ellis Henry Milton, Mount Eden, Ky.; Hospital College of Medicine, Louisville, 1892; Southwestern Homeopathic Medical College and Hospital, Louisville, 1898; aged 74; died, July 17, in the King's Daughters Hospital, Shelbyville, of an abdominal malignant condition.

Floyd Ashley Thomas, Flemington, N. J.; Medico-Chirurgical College of Philadelphia, 1907; member of the Medical Society of New Jersey; served during the World War; member of the board of health; aged 57; died, August 9, of coronary thrombosis.

Frank Jackman Sherman ✠ Ballston Spa, N. Y.; University of Vermont College of Medicine, Burlington, 1880; for many years health officer; aged 80; on the staff of the Benedict Memorial Hospital, where he died, August 25, of coronary sclerosis.

Henry Sprince ✠ Lewiston, Maine; McGill University Faculty of Medicine, Montreal, Que., Canada, 1923; served during the World War; aged 41; on the staff of the Central Maine General Hospital, where he died, August 4, of sarcoma of the sacrum.

Fred Barrington Sutherland, Wolfeboro, N. H.; Cooper Medical College, San Francisco, 1892; member of the Medical Society of the State of New York; fellow of the American College of Surgeons; aged 70; died, August 11, of cerebral hemorrhage.

Nathan Easterly Hartsook ✠ Johnson City, Tenn.; Medical College of Virginia, Richmond, 1895; past president of the Washington County Medical Society; on the staff of the Appalachian Hospital; aged 70; died, August 10, of coronary thrombosis.

Charles William Courville, Detroit; Detroit College of Medicine, 1906; member of the Michigan State Medical Society; diagnostician for the city board of health; on the staff of the Providence Hospital; aged 58; died, August 31, of coronary thrombosis.

James Edward Mansfield, Oswego, N. Y.; Dartmouth Medical School, Hanover, N. H., 1897; member of the Medical Society of the State of New York; for many years health officer; aged 69; on the staff of the Oswego Hospital; died in July.

Helmina Jeidell ✠ Denver; Johns Hopkins University School of Medicine, Baltimore, 1912; member of the American Academy of Pediatrics; aged 60; died August 10, at St. Luke's Hospital of postoperative ileus and chronic intestinal obstruction.

David Forrest Kirkpatrick, Lewisville, Texas; Vanderbilt University School of Medicine, Nashville, Tenn., 1885; Medical Department of Tulane University of Louisiana, New Orleans, 1887; aged 78; died, August 20, of carcinoma of the bladder.

Clarence H. Willis ✠ Barnesville, Ga.; Atlanta College of Physicians and Surgeons, 1906; past president of the Lamar County Medical Society; aged 57; died, August 15, at the Middle Georgia Hospital, Macon, of cerebral hemorrhage.

Charles Miner Miller Jr. ✠ Olive View, Calif.; University of Pittsburgh School of Medicine, 1928; served during the World War; on the staff of the Olive View Sanatorium; aged 45; died, August 27, of a self-inflicted bullet wound.

Harold Cintra Cox, New York; University of Virginia Department of Medicine, Charlottesville, 1921; member of the Medical Society of the State of New York; aged 44; on the staff of the French Hospital, where he died, August 25.

John Harrison Timberman, Chillicothe, Mo.; St. Louis University School of Medicine, 1906; member of the Missouri State Medical Association; served during the World War; aged 62; died, August 22, of cerebral hemorrhage.

James Gregory Marron, Lincoln, Neb.; Bellevue Hospital Medical College, New York, 1887; member of the Nebraska State Medical Association; veteran of the Spanish-American War; aged 75; died, August 19, of cardiac infarction.

Percival Walter Darrah, Leavenworth, Kan.; University of Pennsylvania Department of Medicine, Philadelphia, 1898; member of the Kansas Medical Society; on the associate staff of St. John's Hospital; aged 67; died in August.

Loren Wilder ✠ Chicago; Rush Medical College, Chicago, 1901; fellow of the American College of Surgeons; chief of the surgical staff of the Edgewater Hospital; aged 66; died, August 19, of cerebral hemorrhage and arteriosclerosis.

Fred Farley Carpenter, Pella, Iowa; Drake University Medical Department, Des Moines, 1897; member of the Iowa State Medical Society; veteran of the Spanish-American War; aged 69; died, August 6, of coronary occlusion.

John Wesley Page ✠ Jackson, Mich.; University of Pittsburgh School of Medicine, 1914; aged 59; on the staffs of the Jackson Clinic and the W. A. Foote Memorial Hospital, where he died, August 22, of coronary occlusion.

Allen C. Holliday, Athens, Ga.; University of Georgia Medical Department, Augusta, 1884; member of the Medical Association of Georgia; for many years member of the board of education; aged 75; died, August 20.

Emil Otto Jellinek, San Francisco; Medizinische Fakultät der Universität Wien, Austria, 1892; served during the World War; formerly on the staff of the Mount Zion Hospital; aged 73; died, July 22, of coronary occlusion.

Isaac Sherman Clark, Long Beach, Calif.; Keokuk (Iowa) Medical College, 1898; member of the California Medical Association; aged 66; died, August 3, in St. Luke's Hospital, Spokane, Wash., of coronary thrombosis.

Jacob Heckmann ✠ New York; Hessische Ludwigs-Universität Medizinische Fakultät, Giessen, Hesse, Germany, 1896; on the staff of the Misericordia Hospital; aged 68; died, August 13, of coronary thrombosis.

Jefferies Buck ✠ Baltimore; University of Pennsylvania Department of Medicine, Philadelphia, 1895; aged 68; died, August 14, in the Union Memorial Hospital of arteriosclerosis and hypertensive cardiovascular disease.

Stanley B. Dickinson, Portland, Ore.; College of Physicians and Surgeons, School of Medicine of the University of Illinois, 1897; aged 68; died, July 22, in the Veterans Administration Facility of coronary sclerosis.

George Adelbert Emard ✠ Mansfield, Mass.; Tufts College Medical School, Boston, 1918; for many years on the staff of the Sturdy Memorial Hospital, North Attleboro; aged 56; died, August 3, of cerebral hemorrhage.

Charles C. Ross ✠ Clarion, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1891; secretary of the Clarion County Medical Society; county health officer; aged 72; died, August 5, of heart disease.

Haynes Watts Brownfield, Anthony, Kan.; Hospital College of Medicine, Louisville, Ky., 1901; member of the Kansas Medical Society; aged 59; died, August 2, of Buerger's disease and carcinoma of the bladder.

Burkert Clark ✠ Hamilton, Ohio; Miami Medical College, Cincinnati, 1901; served during the World War; aged 65; died, August 25, in the Veterans Administration Facility, Dayton, of cerebral arteriosclerosis.

George Thomas Laman, Cave City, Ark. (licensed in Arkansas in 1904); for many years member of the school board; member of the Arkansas Medical Society; aged 57; died, August 8, of angina pectoris.

Cyrille Phedora Verdon, Granby, Que., Canada; Laval University Faculty of Medicine, Quebec, 1895; Laval University Medical Faculty, Montreal, 1896; aged 66; died, July 24, of carcinoma of the esophagus.

William O. Bailey, Louisville, Ky.; University of Louisville Medical Department, 1888; member of the Kentucky State Medical Association; aged 76; died, August 4, in the Jewish Hospital of cerebral hemorrhage.

James Samuel Hyde, Fall River, Mass.; Columbia University College of Physicians and Surgeons, New York, 1902; aged 65; died, August 9, in the Union Hospital of diabetes mellitus and bronchopneumonia.

August Omer Truelove, Fort Wayne, Ind.; Indiana University School of Medicine, Indianapolis, 1915; served during the World War; aged 57; died, August 7, in St. Joseph's Hospital of pernicious anemia.

Charles Pusey McCracken, Colorado Springs, Colo.; University of Arkansas School of Medicine, Little Rock, 1918; member of the Colorado State Medical Society; aged 45; died, August 21, of myocarditis.

William L. Turner, Springfield, Mo.; Barnes Medical College, St. Louis, 1906; member of the Missouri State Medical Association; aged 68; died, August 30, in a local hospital of injuries received in a fall.

Clovis Hiram Robinson, Crane, Texas; Tulane University of Louisiana School of Medicine, New Orleans, 1937; member of the State Medical Association of Texas; aged 28; died, July 22, of nephritis.

Harry Thompson Liggett, Louisville, Ky.; Kentucky School of Medicine, Louisville, 1905; served during the World War; aged 64; died, August 17, in St. Joseph's Infirmary of staphylococcic septicemia.

William Coleman Rountree, Fort Worth, Texas; University of Tennessee Medical Department, Nashville, 1895; aged 69; died, August 2, of hypertensive heart disease, nephritis and cerebral hemorrhage.

Samuel Augustus Sturm, Pittsburgh; Western Pennsylvania Medical College, Pittsburgh, 1895; member of the Medical Society of the State of Pennsylvania; aged 78; died, August 11, of carcinoma of the nose.

Arthur Lavoie, Sillery, Que., Canada; M.B., Laval University Medical Faculty, Montreal, 1886, and L.M., in 1888; M.D., Laval University Faculty of Medicine, Quebec, 1908; aged 75; died in August.

Joseph Alexander McCready, Greenwich, Ohio; Bellevue Hospital Medical College, New York, 1875; member of the Medical Society of the State of Pennsylvania; aged 91; died, August 18, of senility.

Homer Bowen, Walterboro, S. C.; University of Georgia Medical Department, Augusta, 1911; member of the South Carolina Medical Association; aged 52; died, August 26, of cerebral hemorrhage.

Everett Dayton Knight ✠ Anderson, Ind.; Indiana University School of Medicine, Indianapolis, 1925; aged 38; on the staff of St. John's Hospital, where he died, August 5, of cerebral hemorrhage.

S. W. Williams, Gassaway, Tenn. (licensed in Tennessee in 1910); formerly bank president and member of the board of education of Cannon County; aged 58; died, August 19, of coronary embolism.

Raymond Fox Roller ✠ Altamont, Kan.; Kansas Medical College, Medical Department of Washburn College, Topeka, 1913; at one time mayor; aged 55; died, August 11, of cerebral hemorrhage.

Eugene Rischelle Delong, Geigertown, Pa.; Jefferson Medical College of Philadelphia, 1891; member of the Medical Society of the State of Pennsylvania; aged 69; died, July 27, of heart disease.

Carl Frederick C. Kramer, Chicago; University of Illinois College of Medicine, Chicago, 1909; aged 66; for many years on the staff of the Belmont Hospital; died, August 6, of heart disease.

Napoleon B. Houser, Charlotte, N. C.; Leonard Medical School, Raleigh, 1891; formerly on the staff of the Good Samaritan Hospital; aged 69; died, August 28, of cerebral hemorrhage.

Paul Clark Gilson, San Leandro, Calif.; McGill University Faculty of Medicine, Montreal, Que., Canada, 1937; aged 29; died, July 10, of an overdose of sleeping capsules taken accidentally.

Ellis Brown Rhodes ✠ East Cleveland, Ohio; Western Reserve University Medical Department, Cleveland, 1897; aged 66; died, August 7, at his home in Shaker Heights of carcinoma of the colon.

Irving Jerome Bleiweiss, Cleveland; The School of Medicine of the Division of Biological Sciences, University of Chicago, 1933; aged 33; died, August 30, in Chicago of cardiorenal disease.

Robert J. Gauldin, Dallas, Texas; St. Louis College of Physicians and Surgeons, 1900; member of the State Medical Association of Texas; aged 69; died, August 5, of intestinal obstruction.

David Joseph Hetrick, Harrisburg, Pa.; Jefferson Medical College of Philadelphia, 1897; member of the Medical Society of the State of Pennsylvania; aged 67; died, July 11, of coronary occlusion.

George Wilkinson, Jersey City, N. J.; Bellevue Hospital Medical College, New York, 1882; member of the Medical Society of New Jersey; aged 77; died, August 17, of arteriosclerosis.

Rupert William Ford, Otego, N. Y.; Albany (N. Y.) Medical College, 1899; member of the Medical Society of the State of New York; aged 65; died, August 17, of angina pectoris.

William Colfax Roberts, Owatonna, Minn.; University of Michigan Homeopathic Medical School, Ann Arbor, 1899; aged 70; died, August 25, of coronary thrombosis and chronic myocarditis.

Howard Conover, Barnegat, N. J.; Hahnemann Medical College and Hospital of Philadelphia, 1905; member of the board of health; aged 61; died, August 13, of cardiac insufficiency.

James H. Fargher ✠ La Porte, Ind.; Chicago Homeopathic Medical College, 1903; on the staff of the Holy Family Hospital; aged 64; died, August 6, of coronary thrombosis.

Minnie Agnes Hinch Conley, Wilmette, Ill.; Northwestern University Woman's Medical School, Chicago, 1901; aged 64; died, August 31, of chronic myocarditis and arteriosclerosis.

Annette B. Fiske Pomeroy, Pontiac, Mich.; Michigan College of Medicine and Surgery, Detroit, 1901; aged 77; died, August 26, in Stoney Point, of myocarditis and arteriosclerosis.

Heinrich Vogel, New York; Albertus-Universität Medizinische Fakultät, Königsberg, Prussia, 1896; aged 64; died, July 19, in Washington, D. C., of carcinoma of the sigmoid.

D. E. Bridgefarmer, McKinney, Texas (licensed in Texas under the Act of 1907); aged 80; died, July 22, of cerebral hemorrhage, hypertensive heart disease and arteriosclerosis.

C. Hector Sexton, Dunn, N. C.; University of Maryland School of Medicine, Baltimore, 1890; aged 83; died, August 30, in the Good Hope Hospital, Erwin, of coronary sclerosis.

Stephen A. Cunningham, Marietta, Ohio; Medical College of Ohio, Cincinnati, 1890; member of the Ohio State Medical Association; aged 71; died, August 14, of heart disease.

Claude Ely Simons, San Diego, Calif.; Hering Medical College, Chicago, 1902; aged 58; died, August 19, in San Francisco of coronary thrombosis and arteriosclerosis.

G. Howard Wilson, Dalton City, Ill.; National Normal University College of Medicine, Lebanon, Ohio, 1896; aged 67; died, August 31, of amyotrophic lateral sclerosis.

Albert Lafayette Foster, Corryton, Tenn.; National University Medical Department, Washington, D. C., 1897; for many years postmaster; aged 74; died in August.

Reuben L. Hust, Albuquerque, N. M.; Vanderbilt University School of Medicine, Nashville, Tenn., 1899; aged 69; died, August 19, of cerebral hemorrhage and leukemi .

William M. Edgerton, Minneapolis; University of Minnesota College of Medicine and Surgery, Minneapolis, 1896; aged 69; died, August 4, of coronary sclerosis.

Robert Joseph Carey, North Brookfield, Mass.; Yale University School of Medicine, New Haven, Conn., 1928; aged 36; died, August 20, in Boylston of tuberculosis.

George W. Antoine, Houston, Texas; Meharry Medical College, Nashville, Tenn., 1906; served during the World War; aged 60; died, August 17, of heart disease.

Frank William Hewes, Groton, Conn.; University of Vermont College of Medicine, Burlington, 1894; aged 72; died, August 18, of carcinoma of the intestine.

George Henry Littlefield, Boston; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1878; aged 91; died, August 18, in the City Hospital.

John O. Briscoe, Weslaco, Texas; Missouri Medical College, St. Louis, 1887; aged 79; died, July 24, in Mission of complications following a fractured hip.

William Yancey White, Center, Ala.; Vanderbilt University School of Medicine, Nashville, Tenn., 1887; aged 78; died, August 11, of coronary occlusion.

Walter Odesly House, Tarboro, N. C.; Medical College of Virginia, Richmond, 1927; aged 41; was killed, August 22, near Nashville in an airplane accident.

Jesse Howard Hutten, Omaha; Howard University College of Medicine, Washington, D. C., 1898; aged 68; died, August 11, in Los Angeles of heart disease.

David Henry Braden, Wooster, Ohio; Homeopathic Hospital College, Cleveland, 1895; aged 71; died, August 13, of carcinoma of the liver and rectum.

Ben C. Crisler, Aberdeen, Miss.; College of Physicians and Surgeons, Memphis, Tenn., 1907; aged 52; died, August 10, of poisoning by carbolic acid, self administered.

Gilbert Leroy Pray, Lake City, Iowa; State University of Iowa College of Medicine, Iowa City, 1897; aged 63; died, August 19, of bronchopneumonia.

Orley Haven Van Eman ✠ El Centro, Calif.; College of Medical Evangelists, Los Angeles, 1924; aged 40; died, August 24, of a self-inflicted bullet wound.

Sylvester Sutton Hamilton, Punxsutawney, Pa.; Columbus (Ohio) Medical College, 1878; aged 86; died, August 2, of a fractured hip received in a fall.

Wen Galaway Cutts, Pittsburgh; Detroit College of Medicine, 1909; aged 66; died, July 10, in St. Francis Hospital of carcinoma of the prostate.

John August Rolfs, Aplington, Iowa; Drake University College of Medicine, Des Moines, 1904; aged 70; died, August 29, of coronary occlusion.

James Harry Hagan, Lake Forest, Ill.; Drake University Medical Department, Des Moines, 1890; also a pharmacist; aged 76; died, August 27.

Floyd B. Moore, Fairhope, Ala.; Chicago Medical College, 1889; aged 71; died, August 5, of chronic myocarditis and arteriosclerosis.

Alexander A. Friedel, Memphis, Tenn.; Jefferson Medical College of Philadelphia, 1887; aged 79; died, August 1, of arteriosclerosis.

Burt Omen Jerrel, Oskaloosa, Iowa; Chicago Homeopathic Medical College, 1894; aged 70; died, August 17, of coronary occlusion.

Joseph Lafayette Minton, Hartman, Ark.; Missouri Medical College, St. Louis, 1880; aged 85; died, August 7, of pernicious anemia.

Timothy A. Daly ✠ Chicago; Northwestern University Medical School, Chicago, 1897; aged 65; died, August 16, of heart disease.

Edgar Merryman Parlett, San Francisco; Baltimore Medical College, 1902; aged 59; died, August 21, of a self-inflicted bullet wound.

Abraham B. Deany, Winchester, Ky.; Meharry Medical College, Nashville, Tenn., 1903; aged 62; died, August 13, of myocarditis.

Leonidas M. Jones, Harrison, Mich.; Detroit Homeopathic College, 1906; aged 63; died, August 28, of coronary thrombosis.

John William Wills, Wellston, Ohio; Kentucky School of Medicine, Louisville, 1890; aged 76; died, August 14, of pneumonia.

Davis H. Westfall, Polk, Neb.; John A. Creighton Medical College, Omaha, 1902; aged 64; died, August 11, of coronary occlusion.

Lewis Mendelsohn ✠ Jersey City, N. J.; Baltimore Medical College, 1901; aged 66; died, August 26, of pulmonary embolism.

Henry A. Smith, Sumner, Miss.; Missouri Medical College, St. Louis, 1879; aged 81; died, August 1, of coronary occlusion.

Edward Bower Flavien, New Haven, Ind.; Toledo Medical College, 1898; aged 63; died, August 27, of carcinoma of the lung.

David Finley Brown, Hudgins, Va.; Cleveland University of Medicine and Surgery, 1897; aged 82; died, August 15, of senility.

Henry G. Stemen, Lebanon, Ohio; Medical College of Fort Wayne, Ind., 1878; aged 88; died, August 16, of myocarditis.

Henry Robert Hay, Wiarton, Ont., Canada; Victoria University Medical Department, Coburg, 1887; died, August 21.

William John Beatty, Keewatin, Ont., Canada; Trinity Medical College, Toronto, 1896; died, August 23.

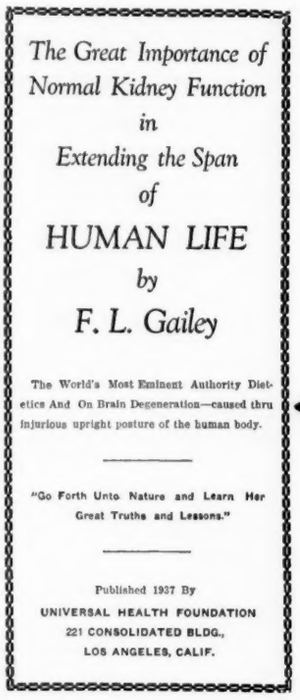
Robert Elice Calhoun, Tulsa, Okla.; Barnes Medical College, St. Louis, 1898; aged 70; died in August.

Bureau of Investigation

THE UNIVERSAL HEALTH FOUNDATION FRAUD

Post Office Closes Mails to F. L. Gailey and Z. Dominguez

Florence L. Gailey, a 70 year old woman, allegedly the widow of a physician who died in 1926, together with 73 year old Zeferino Dominguez, carried on from Los Angeles a rather elaborate piece of mail-order quackery under the trade styles Universal Health Foundation, Goode Products Company and Good Products Company. Mrs. Gailey was president and Mr. Dominguez was vice president of the concern.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The World's Most Eminent Authority Dietetics And On Brain Degeneration—caused thru injurious upright posture of the human body.
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Published 1937 By
UNIVERSAL HEALTH FOUNDATION
221 CONSOLIDATED BLDG.,
LOS ANGELES, CALIF.

The information that follows is based in part on material in the files of the Bureau of Investigation of the American Medical Association and, more largely, on the statements made by Judge Vincent M. Miles, Solicitor for the Post Office Department, in his memorandum to the Postmaster General recommending the issuance of a fraud order. Mrs. Gailey and Dominguez sold through the mails (1) a device called the "Miracle Exerciser," (2) a book entitled "Secrets of How to Live 150 Years" and (3) certain nostrums called, respectively, "Miracle Hemovida Tablets," "Miracle Digestall Tablets" and "Si-Nease Miracle Antiseptic." The business was started in 1931 under the name "The Miracle Exerciser Company," which was changed in 1935 to "Universal Health Foundation." No physicians, pharmacists or chemists were connected with the enterprise, and the nostrums, book and "exerciser" were purchased from other sources.

Mrs. Gailey is said to have told the Post Office officials that she had learned all she knew about the human system from her husband. She declared that she originated the Miracle Exerciser, which, according to the advertising, would prevent not only "senility and loss of sex power" but also "prolapses in all the vital organs" and would, in addition, "stimulate circulation in the scalp" and aid "in all heart disturbances." The Miracle Exerciser consisted of two spiral springs, each with a handle at one end while the other ends were connected by a metal plate or bar. The user was supposed to lie supine with the feet on the bar and a handle in each hand; the bar was to be pushed with the feet and the handles pulled with the hands. One variation in its use was for the user to lie with head hanging over the side of the bed for the alleged purpose of causing greater blood circulation in the head. The mischievous possibilities of such recommendation in cases of elderly people with sclerotic vascular systems may be imagined.

The nostrum "Hemovida" was said by the Gailey-Dominguez concern to be "based on the Nobel Prize Award of 1935"—whatever that might mean. The tablets were reported to contain seaweed (kelp), alfalfa, legume starch, cornstarch, chlorophyll, some animal matter (allegedly liver extract) and small amounts of iron, phosphorus, magnesium, sulfur, sodium and potassium. The "Miracle Digestall Tablets" were essentially of the same composition as Hemovida except that they contained no animal matter. The advertising led the public to believe that Hemovida would "produce more healthy red blood cells," would "raise the defenses of the body," "increase vitality" and cure pernicious anemia. The Digestall tablets were claimed to make it possible for oldsters to "retain your youthful appearance throughout the entire span of life." "Si-Nease Miracle Antiseptic" was a mixture of mineral oil and olive oil in which there was 1 per cent ephedrine, ethyl aminobenzoate, carbolic acid, menthol, camphor, eucalyptus and oil of thyme. Government tests were said to show that the stuff had "very weak inhibitory effects upon germs tested in vitro."

The only evidence offered by Gailey-Dominguez was statements from two alleged physicians respecting the claims made by the company. Only one of these statements was sworn and neither was supported by any evidence to show the qualifications of the writers or to show in fact whether those who made them were physicians. The statements were held to be incompetent as medical evidence and their incompetence was even admitted by the attorney for the Universal Health Foundation! Judge Miles expressed the opinion that "some of these alleged doctors' statements appear ridiculous on their face."

Even more preposterous, however, is the claim appearing under the name of F. L. Gailey on the cover of an advertising leaflet, shown (reduced) on this page. The claim reads as follows:

The World's Most Eminent Authority Dietetics And On Brain Degeneration—caused thru injurious upright posture of the human body.

After the hearing in Washington Judge Miles, on going into the matter in detail, declared that the evidence showed that the scheme was a fraudulent one and he recommended that the Postmaster General issue a fraud order closing the mails to the concern. On Feb. 16, 1939, the mails were closed to Universal Health Foundation, Good Products Company, Goode Products Company, F. L. Gailey, president, Zeferino Dominguez, vice president, Z. Cortez, secretary, John Clark, assistant secretary, and their officers and agents as such.

MISBRANDED "PATENT MEDICINES"

Abstracts of Notices of Judgment Issued by the Food and Drug Administration of the United States Department of Agriculture

[EDITORIAL NOTE.—The abstracts that follow are given in the briefest possible form: (1) the name of the product; (2) the name of the manufacturer, shipper or consigner; (3) the composition; (4) the type of nostrum; (5) the reason for the charge of misbranding, and (6) the date of issuance of the Notice of Judgment—which is considerably later than the date of the seizure of the product and somewhat later than the conclusion of the case by the Food and Drug Administration.]

Belding Skin Remidin.—International Stock Food Co., and Dr. Belding Medicine Co., Minneapolis. Composition: Chiefly alcohol, water, glycerin and small amounts of ethyl acetate and mercuric chloride. Its effectiveness as a cure for eczema, rash, scabies, plant poisoning, hives, barber's itch, ringworm, itching "piles," parasitic diseases, dandruff, etc., was fraudulently represented.—[*N. J. 29253; December 1938.*]

Ingersoll's Gall-Stone Pills, Gall Stone Remedy and System Cleanser.—G. A. Ingersoll Remedy Co., Milwaukee. Composition: Pills, phenolphthalein (0.64 grain in each), small amounts of extracts of plant drugs, a salicylate and menthol; Gall Stone Remedy and System Cleanser, a liquid medicine containing essentially a fixed oil, such as olive oil, with sugar and water, cinnamon flavored; and two powders, one a mixture of baking soda and sodium tartrate, and the other, tartaric acid. Representations made for the effectiveness of these nostrums in treating gallstone conditions were declared fraudulent.—[*N. J. 29268; December 1938.*]

Nature's Herb Tablets.—Washington Herb Co., Washington, D. C. Composition: Plant material, including aloe. Curative effect in blood, liver, kidney, rheumatic and stomach disorders, ague, malaria, nasal catarrh, nervous diseases, etc., was fraudulently represented.—[*N. J. 29255; December 1938.*]

Correspondence

POLIOMYELITIS AND TONSILLECTOMY

To the Editor:—Dr. H. G. Langworthy (THE JOURNAL, September 9, p. 1052) believes that we are unduly overwrought over the relationship of poliomyelitis and the removal of tonsils and adenoids. He states:

> Considering that operations for tonsillectomy and adenectomy number possibly one fourth of all major operations that are performed yearly in the country and under all sorts of varying conditions and circumstances, one could well promote almost any idea, however untrue or remote, by citing the occurrence of a few sporadic cases. The removal of adenoids and tonsils, when necessary, is so important in the welfare of children that attempts to raise doubts and issues not clearly proved is to do great harm rather than good. Because a few cases of poliomyelitis occurring in summertime may have appeared after any operation, whatever that operation might accidentally have been, is no reason whatever to raise doubt and fear. If there is an epidemic of poliomyelitis in one's own community, any wise physician under these exceptional circumstances should easily recognize what is the best procedure to adopt. The summertime during the long vacation period is a good time for the removal of tonsils and adenoids in school children and should be consistently encouraged.

It is fairly well established by now, from the experimental, epidemiologic and clinical points of view, that the nasopharynx constitutes the portal of entry for the poliomyelitis virus. Any tissue injury present as a result of operation on the tonsils and adenoids, in the presence of a poliomyelitis epidemic, would tend to increase the susceptibility to the virus.

Silverman (Acute Poliomyelitis in Syracuse, N. Y., *Am. J. Dis. Child.* **41**:829 [April] 1931) reported five cases of infantile poliomyelitis following tonsillectomies and adenoidectomies (Fischer, A. E., and Stillerman, Maxwell: Acute Anterior Poliomyelitis in New York, 1935 [A Review of 686 Cases], *Am. J. Dis. Child.* **54**:984 [Nov.] 1937).

That a seasonal variation exists, one must remember that the peak of poliomyelitis not infrequently corresponds to the heavy pollen concentration during late August and September months (Felderman, Leon: Acute Anterior Poliomyelitis with Special Reference to Its Rhinological Aspect, *Laryngoscope* **48**:802 [Nov.] 1938).

It is a mistake to advise parents that the summer is the ideal time for tonsil and adenoid surgery. As a matter of fact, the cooler months of the year offer the child a more auspicious time without undue risks.

LEON FELDERMAN, M.D., Philadelphia.

PRIMARY TUBERCULOSIS IN ADULTS

To the Editor:—As I have been especially interested in primary tuberculosis in adults for several years and recently published an article on the subject, together with Hedvall (Malmros, Haqvin, and Hedvall, Erik: Studien über die Entstehung und Entwicklung der Lungentuberkulose mit besonderer Berücksichtigung des Verlaufs der tuberkulösen Erstinfektion des Jugendlichen und Erwachsenen, Tuberkulose-Bibliothek No. 68, Leipzig, Johann Ambrosius Barth, 1938; reviewed in THE JOURNAL, Dec. 17, 1938, p. 2331), may I be allowed to make a few comments in connection with the editorial entitled "Primary Tuberculosis in Adults" in THE JOURNAL, July 8, page 146. It concerns the following statement: "Primary infection in adults, other things being equal, appears to be . . . no more grave than in children" and in addition the following points from page 147, taken from the article of Myers and his co-workers:

> The first infection type of tuberculosis, as observed in this group of adults, has resulted in no significant symptoms or abnormal physical signs throughout the entire course of development. Indeed, he states, the lesions in the majority of their cases would not have been known to exist had it not been for periodic tuberculin tests, and the making of roentgenograms of the positive reactors. It apparently makes no difference at what time of life the first infection with tubercle bacilli occurs with reference to the average type of tuberculosis in human beings.

In order to understand the importance of primary tuberculosis in adults, it is surely essential to study in detail cases in which the tuberculin reaction in adults has changed from negative to positive and to check up on them by frequent roentgenograms during the years immediately following. In our work Hedvall and I have given a report of 151 such cases of primary tuberculosis in adults. Of these, 104 showed no symptoms besides the positive tuberculin reaction. Of the other forty-seven cases, a primary complex or merely enlarged hilus glands could be shown roentgenologically in twenty-one cases. In these cases there usually appeared in connection with the infection general symptoms such as fever, symptoms of influenza, increased sedimentation rate and, in women very often, erythema nodosum. In some cases pleurisy developed after an interval of a few months and in others actual pulmonary tuberculosis resulting from "subprimary initial lesions" in the supraclavicular region. In some of the cases the first sign of tuberculous infection was an exudative pleurisy. The primary infection can also first appear as acute miliary tuberculosis. In all these different forms of primary tuberculosis in adults there generally appeared in connection with the infection, as in children, more or less pronounced general symptoms for which the persons concerned sought medical aid because of feeling ill. Again, in other cases (fourteen) actual tuberculosis of the lungs gradually developed without any general symptoms and often with a normal sedimentation rate. Changes in the lungs were discovered here only by means of systematic roentgen supervision. The first detectable lesions were in the form of "subprimary initial lesions"—diffuse, cloudlike spots of different size, often multiple, and in the majority of cases situated in the supraclavicular region or in the first intercostal space. In a considerable number of cases the initial apical lesions were the first manifestation of a progressive type of pulmonary tuberculosis. The conditions found in those cases in which the tuberculin reaction was positive at the time of the first examination corresponded well with those in the aforementioned group of cases. A subclavicular infiltrate of the Assmann type was only rarely found to be the earliest lesion.

As is evident from the foregoing, primary tuberculosis in adults can appear in different forms. In some cases the infection gives pronounced general symptoms; then enlarged hilus glands are most often found, and sometimes a typical primary complex. In many cases, however, progressive tuberculosis of the lungs develops in close connection with the infection (already after a few months) without the person concerned feeling ill. It may be of great interest to know of this form of primary tuberculosis in adults, for it can be discovered only by systematic roentgen examinations. It is possible, and perhaps likely, that it is just this form of tuberculosis which is the cause of the high morbidity and mortality in tuberculosis of the lungs in persons between the ages of 20 and 30. In any case, one must probably count on the fact that primary infection in adults is more grave than in children, for among children, as is well known, one finds progressive tuberculosis of the lungs rather seldom. From the point of view of national economy it might be more important to sacrifice work and money in examining young adults rather than children of school age. As far as I can understand, there has been as yet but slight advantage from all mass examinations (x-ray) of children. On the contrary, one might be able to expect better results from tuberculin and roentgen examinations (with frequent supervision) of young adults.

Lastly, may I draw attention to a little typographic error on page 146. In the report of Heimbeck's examination it says "The highest morbidity was in the nurses who were positive at the time of admission." I presume that the word should have been negative.

HAQVIN MALMROS, M.D., Örebro, Sweden.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

NIGHT BLINDNESS AND VITAMIN DEFICIENCY

To the Editor:—**One of my patients, a man about 50 years old, has complained of painful symptoms apparently associated with the use of his eyes in reading. He has worn glasses for many years but none of the ophthalmologists to whom I have sent him have found any disease condition in his eyes or elsewhere and his general health is good. The trouble is diagnosed as being of entirely muscular origin. After reading rather close material but under approved conditions of illumination, the patient feels a general strain or dilatation around the eyes; this leads to a general headache seeming to center in the middle of the head, with slight fever and some blurring of sight, restlessness and nausea that may climax in vomiting. He has developed aversion to night driving of his motor car to an unusual degree. Can you advise me whether or not any relation has been proved between night blindness and vitamin deficiency and, if so, what treatment of this condition has proved most successful? Do you feel that an analogous vitamin deficiency could possibly be connected with the symptoms that have developed in this patient?**

M.D., Massachusetts.

ANSWER.—Vitamin A deficiency of the retina is one of the many causes of night blindness. If the patient is suffering from night blindness arising only from the lack of provitamin or vitamin A in the food and has no disease which prevents the vitamin A from reaching his healthy retina in sufficient quantity, there is reason to believe he can be cured of his night blindness by taking daily from 5,000 to 10,000 international units of vitamin A by mouth. His aversion to night driving perhaps may be relieved by this treatment, but it is doubtful whether his other symptoms are related to vitamin A deficiency. It is possible but not probable that vitamin B_1 deficiency may be related to these symptoms.

BONE CHANGES IN SYPHILIS

To the Editor:—**Thewlis, in his book "Preclinical Medicine" in the chapter on syphilis, quotes extensively from Bainbridge's paper "Diagnosing the Undiagnosed Lues," which maintains that in the absence of the ordinary signs of syphilis, including a negative serologic reaction, syphilis can be diagnosed by the finding of peculiar indentations visible in the bones of the hands, indentations which apparently need special radiologic experience to be detected. I have been unable to find mention of this diagnostic method in the literature with the exception of the sources cited, and I should like to know whether these observations and conclusions have been confirmed or not.**

Francesco Ronchese, M.D., Providence, R. I.

ANSWER.—Apparently Thewlis takes his opinions entirely from Bainbridge (Bainbridge, W. S.: Diagnosing the Undiagnosed Lues, *Mil. Surgeon* **78**:273 [April] 1936), who in turn depends for his information on Riley and Smith (Riley, B. P., and Smith, E. E.: Chronic Arthrites, Their Differential Diagnosis and Treatment, with Special Reference to Relief of Pain, *New York State J. Med.* **25**:422 [March 13] 1925). These authors say: "An important finding both in acquired and congenital syphilis which so far as we know has not been recognized, and which is often times of very great value in deciding the diagnosis, is the occurrence on the phalanges of the subperiosteal budding and resorption areas without necessary relation to any other syphilitic pathology. These may be so slight as to be either overlooked or disregarded until their diagnostic importance is realized."

No adequate documentation for this statement is provided by Riley and Smith, and Bainbridge's contribution consists in brief reports of eight cases in which, regarding the roentgenologic study of the bones, he simply says: "Roentgenograms of the hands were indicative of syphilitic infection."

Characteristic changes in the bones of the hands in both congenital and acquired syphilis have long been recognized and are described in all standard textbooks. The comments of Riley and Smith and of Bainbridge, however, are the only references to this particular type of roentgenologic change that have been unearthed, and it is perhaps of significance that so modern and exhaustive a treatise as that of Ferguson (Ferguson, A. B.: Roentgen Diagnosis of the Extremities and Spine, New York, Paul B. Hoeber, 1939) does not mention them.

THYROXINE IN HYPERTHYROIDISM

To the Editor:—**What is the present status of the treatment of hyperthyroidism with thyroid extract as described by McClendon and Rice in the *Proceedings of the Society for Experimental Biology and Medicine* for March 1939? How can prolonged feeding of thyroxine or thyroid extract produce thyroid atrophy, as stated by Elmer in his book "Iodine Metabolism" (New York, Oxford Press, 1938)?**

R. L. Gorrell, M.D., Clarion, Iowa.

ANSWER.—All that McClendon and Rice (*Proc. Soc. Exper. Biol. & Med.* **40**:379 [March] 1939) showed was that the administration of 2 grains (0.13 Gm.) of desiccated thyroid daily to five women with toxic adenoma and eleven patients with exophthalmic goiter did not affect the basal metabolic rate significantly. Probably this means that at high levels of metabolism relatively large amounts are required to affect the rate. The article by McClendon and Rice does not demonstrate that desiccated thyroid has any value in the treatment of hyperthyroidism. It has been tried many times in the past in this condition on the assumption that the secretion of the thyroid was defective and that therefore, in spite of the high metabolism, an actual hypothyroid state existed. As a result of careful observation, it appears that desiccated thyroid is harmful and not beneficial in the management of patients with hyperthyroidism.

Prolonged feeding of thyroxine or desiccated thyroid presumably produces thyroid atrophy by decreasing the demand on the thyroid gland so that a resting state develops. In a similar manner testosterone propionate may inhibit the function of the testis to the point of hypospermia.

RECURRENT MASSIVE PLEURAL EFFUSION

To the Editor:—**Kindly suggest the management of recurrent massive pleural effusion on the right side of the chest, of over one year's duration, in an obese woman at the menopausal age. The onset has been insidious and dyspnea and slight cough are the only symptoms. There is no loss of weight and the blood pressure is low. The Wassermann reaction of the blood is negative. X-ray examination of the chest was negative. The straw colored fluid removed was negative for tubercle bacilli, as was guinea pig inoculation. There was no evidence of tumor by physical or x-ray examination. The chest was tapped several times for the dyspnea and each time more than 2 or 3 quarts of straw colored fluid containing pus cells and few red blood cells but no tumor cells was aspirated. She is being treated for tuberculosis even though the history and roentgenograms are negative. Should as much fluid as possible be removed when excessive dyspnea is present or should a small amount of fluid be removed, or should the fluid be allowed to absorb spontaneously if it will? Is the injection of air or of chemicals into the pleural cavity after removal of fluid of any value? The fluid in the chest refills every week or two before producing excessive dyspnea.**

M.D., New York.

ANSWER.—In this case the problem of management is dependent on the etiologic diagnosis of the pleurisy with effusion. Until such a diagnosis is made, treatment of the case as tuberculosis is the correct attitude, since 80 per cent of the cases of pleurisy with effusion are to be considered tuberculous unless definitely proved otherwise. Thirty per cent of the cases show the tubercle bacillus, a percentage which is increased when the fluid is cultured on special mediums or guinea pigs are injected.

Regarding the question as to how the fluid should be removed, whether in gradual stages or completely, it is suggested that it should be removed in gradual stages to completion and that the fluid should be replaced by air. It is believed that air has a distinct therapeutic value and that, in addition, the procedure will aid in diagnosis. No chemicals should be used.

In order to make an etiologic diagnosis, the following suggestions may be of value: (*a*) injections of iodized oil intratracheally to differentiate the bronchographic and parenchymal changes, which are difficult to obtain through a curtain of fluid or the thickened pleura associated with an effusion of long standing; (*b*) bronchoscopic examination with biopsy, thoracoscopy for nodules on the pleura, tuberculous or malignant; (*c*) section of the sputum for malignant cells and examination of the stomach contents for the tubercle bacillus. Naturally, the sputum should be examined as a routine and the stomach washings should be repeated.

It is necessary to remember that tumor cells would not be found in the fluid unless the tumor invaded the pleural cavity. Unfortunately, the specific gravity of the fluid is not given. On the whole, and basing an opinion on the data given, the history is rather suggestive of a malignant tumor within the chest. The fluid is negative for the tubercle bacillus and refills rapidly to the point of dyspnea, and this combination makes one think of the possibility of a malignant growth.

TUBERCULOUS WOUND INFECTION AFTER NEPHRECTOMY

To the Editor:—**A man aged 44 was operated on six months ago and had a right tuberculous kidney removed. After six weeks the wound broke open and has remained so ever since. I used irrigations of "mercresin" solution, ultraviolet rays, calcium orally and large doses of super D vitamin. There has been little or no improvement during the last six months. The Wassermann reaction is negative and x-ray examination of the chest is negative. I have been advised that tuberculin might be of some value. Kindly advise me whether you feel that it is worth a trial and as to the method of use.** Victor P. Dalo, M.D., Louisville, Ky.

ANSWER.—It is evident that the patient has a widespread tuberculous infection of his wound. The reason of this occurrence in an occasional case has been the subject of much speculation. Among the theories advanced are the following: 1. The wound becomes infected from the ureteral stump. 2. Some of the perirenal fat that has been left behind harbors tubercle bacilli and, following surgical trauma, breaks down, and so the wound becomes infected. 3. A short time ago a new theory was advanced to the effect that these wounds become infected by the blood stream.

As far as treatment is concerned, there are two schools of thought—the one is medical and the other is surgical. The adherents of the medical point of view in the management of tuberculous wounds advise plenty of rest in bed, lots of sunshine or the use of ultraviolet rays, cod liver oil and the like; in other words, a general program of management such as one employs in any case of tuberculosis. The treatment of the wound consists of dry dressings and the occasional applications of Peruvian balsam. Under this sort of a program most of these wounds heal, although it takes a long time.

The surgical school believes in closing the wounds by operation, removing the tuberculous tissue by means of a dull curet and suturing the wound with silver wire. While healing may be slow under the medical program, the wound generally heals. It is to be remembered that after operation the wound may again become infected and break down.

The use of tuberculin is not advised. It might be advisable to try dressings of cod liver oil.

ATROPINE AND ITS DERIVATIVES

To the Editor:—**1. Would you please inform me whether any of the newer atropine preparations, such as novatropine and syntropan, have advantages over the time-honored extract and tincture of belladonna and atropine sulfate? 2. Will the administration of the extract of belladonna, one-fourth grain three times a day, or of atropine sulfate, 1/150 grain three times a day, produce therapeutic effects on the gastrointestinal tract equal to those obtained by the usual increasing doses of tincture of belladonna? 3. Does the extract of belladonna have any advantage over atropine sulfate? It seems more usually prescribed when capsules or pills are desired, especially in combination with other drugs.**

M.D., New York.

ANSWER.—The synthetic substitutes for atropine have been prepared to overcome the side actions which limit the use of atropine in full dosage. These undesirable side actions of atropine which occur when atropine is used in full therapeutic dosage over a period of time include extensive drying of the mucous membranes and skin, a persistent mydriasis, a rapid heart due to the action on the vagus, and a continual desire to micturate. Larger doses may produce more serious manifestations and restlessness. Also in persons over the age of 50 and in those with a tendency to an increased intra-ocular tension the tendency of atropine to increase this condition must not be disregarded. Novatropine and syntropan are both included in New and Nonofficial Remedies for 1939.

Atropine or belladonna is frequently used over an extended period in the treatment of gastrointestinal conditions to reduce spasm of the smooth muscle and also to reduce the secretion of hydrochloric acid in the stomach. The newer synthetics, such as those mentioned, will reduce spasm of the smooth muscle, but there is some question as to whether they will inhibit the secretion of hydrochloric acid to the same degree as an equivalent amount of atropine.

1. If relief of spasm of the smooth muscle is desired over a period of time, the synthetics will control this with a minimum degree of the undesirable side actions mentioned.

2. Since the extract of belladonna is a 400 per cent preparation (i. e. 1 Gm. of the extract contains the active principles of 4 Gm. of the crude drug) and since belladonna leaves contain not less than 0.3 per cent of mydriatic alkaloids, one-fourth grain (0.016 Gm.) of the extract contains 0.0002 Gm. (1/300 grain) of the total alkaloids. If equivalent quantities of the tincture which is a 10 per cent preparation are used, equal effect on the gastrointestinal tract will be produced.

3. Belladonna contains eight or more alkaloids. They all have practically the same action on smooth muscle, but some are hypnotic and some stimulating to the cerebral cortex. They are present in the extract in the proportion that they occur in the plant. The activity is due mainly to atropine and hyoscyamine. The latter alkaloid is equivalent to atropine in its central effect. If rather large doses of belladonna are to be used over a period of time, the extract might be more desirable than atropine sulfate, owing to the lessened mental effect of the extract when given in equivalent amounts.

INDUSTRIAL DERMATITIS

To the Edtior:—**I am seeking information as to the cause of a dermatitis, apparently of occupational origin. With a negative history for any similar condition previous to 1938, the patient broke out with a maculopapular rash confined chiefly to the ventral surfaces of the forearms, which persisted until the middle of April (having started in January); he began this particular work, i. e., as a laborer in a creamery, July 1, 1937, the work consisting chiefly of sterilizing and cleaning equipment. Some of the lesions became pustular and for these he received inoculations with beneficial results. He was free from any recurrence until March 15, 1939, when the condition returned and has persisted since. The itching coming on during the night is most distressing, and from his scratching some pustular lesions develop. The materials used in his work are as follows: (1) a preparation called Pep-Tex, which is a milk-stone remover made by the Diversey Corporation, Chicago; (2) Diversol, a chlorine preparation made by this firm; (3) a boiler compound for cleaning the boilers; (4) a copper polish, which is a reddish powder, and (5) chlorine. It is with this group of things that I hope you will be able to help me, by suggesting causes of such a dermatitis as we have in this instance.**

R. S. Quackenbush, M.D., Goshen, N. Y.

ANSWER.—All the substances that the patient uses are potential cutaneous irritants. Pep-Tex contains strong alkalis, such as trisodium phosphate, and sodium silicate mixed with sodium chromate. It will irritate the skin if allowed to remain on it for any length of time. It will also enter cuts and abrasions to form chronic ulcers. In addition to this the sodium chromate may also act as a cutaneous sensitizer.

Diversol is also strongly alkaline and in addition contains sodium hypochlorite, which may itself be a cutaneous irritant.

Boiler compounds are also strongly alkaline, containing such substances as sodium hydroxide, sodium carbonate, trisodium phosphate and sodium fluoride, all of which will irritate the normal skin.

Copper polishes may contain crude sodium carbonate, oxalic acid, oleic acid, quartz or silica. The color may be due to paris red or to iron oxide. The sodium carbonate and the oxalic acid are powerful irritants of the skin.

Chlorine can also irritate the skin.

It is advisable that the treatment in this case consist only in the application of mild lotions or ointments, such as boric acid or calamine, and the wearing of long rubber gloves while working to prevent further contact with any of the irritants.

EPHEDRINE IN RHINOLOGY

To the Editor:—**I have been asked to get an opinion as to the use of ephedrine in the treatment of various nasal conditions. The company making this inquiry states that there seems to be some doubt in the minds of the medical profession as to the wisdom of using ephedrine in the treatment of various nasal conditions.** M.D., North Carolina.

ANSWER.—Ephedrine and its salts are drugs of choice for local use in the nose in cases in which the pharmacologic effect of a vasoconstrictor is desired. Thus it is used in acute rhinitis, acute sinusitis and the like. As shown by Proetz and others, ephedrine in weak solutions, from 1 to 3 per cent, has no deleterious effects on ciliary action. In accord with present day thought, ephedrine is best used in physiologic solution of sodium chloride rather than in an oily preparation. It is also well used in weak dilutions, from 0.25 to 0.5 per cent, in the displacement method of treatment as advocated by Proetz.

Although ephedrine is perhaps one of the more important drugs in the treatment of acute and subacute nasal conditions, it must be used with caution in chronic nasal disease. Thus, for example, in vasomotor rhinitis and perennial nasal allergy, in which there is chronic nasal obstruction and the need for relief is constant, ephedrine should be used with caution, for it, as do similar drugs, may act as a sensitizing agent when used indiscriminately. A transient vasoconstriction is followed in many instances by a prolonged vasoparalysis; sneezing, a watery discharge and itching become prominent complaints, and the original disease is much aggravated and prolonged by the very medication intended to relieve it.

DISGUISING TASTE OF SULFATES

To the Editor:—Please let me know what powder is best used to disguise sulfate as to taste.

F. W. Cobar, M.D., Milwaukee.

ANSWER.—The question as to disguising sulfate is rather general and indefinite, as it does not specify a particular one. It is not the sulfate but rather the specific radical attached that needs disguising.

As to disguising sulfates in the dry form: Magnesium sulfate is least unpalatable in the form of the effervescent salt of magnesium sulfate N. F. VI. Sodium sulfate may also be made into effervescent form. Either is perhaps best taken in ice cold lemonade. Tablets of codeine sulfate, quinine sulfate and strychnine sulfate are official in N. F. VI and can be easily swallowed without having the patient experience the bitter taste. The sulfates that need not be given in too large dosage may be dispensed in capsule form.

As to disguising sulfate in liquid form: Codeine sulfate and strychnine sulfate may be well disguised by the use of compound syrup of eriodictyon N. F. VI. Ephedrine sulfate may be prescribed in cherry syrup and is official in N. F. VI under the title "syrup of ephedrine sulfate."

SMOKING ACETYLSALICYLIC ACID WITH TOBACCO

To the Editor:—For the past nine years I have been jail physician and during that time it has been frequently called to my attention that certain inmates were in the habit of crushing tablets of acetylsalicylic acid and putting the powder in tobacco and smoking the mixture. Can you tell me what the effect of the mixture would be from a single smoke and what would be the effect of the continuous use of acetylsalicylic acid in this way?

M.D., District of Columbia.

ANSWER.—A search of the literature has failed to reveal any reports on the effects of inhaling the vapors of acetylsalicylic acid in tobacco smoke. When this drug is mixed with tobacco and smoked as described, several products would be formed and inhaled. Some of the acetylsalicylic acid would probably be volatilized and inhaled as the unchanged acetylsalicylic acid. There would be some salicylic acid and acetic acid inhaled and absorbed and also some other disintegration products of the drug. These substances sensitize the mucous membranes of the respiratory tract and in this way would enhance the effects of the tobacco itself. In addition, the inhalation of the vapors of acetylsalicylic acid would have the usual effect of this drug but to a much greater degree, because of the avenue of entrance into the body. The inhalation of salicylic acid vapors in sufficient amounts produces a nervous exaltation and a cerebral inhibition somewhat resembling that produced by alcohol. This is followed by depression.

It is difficult to say just what the effect of a single smoke would be. The effect of the continuous use of acetylsalicylic acid in this way would vary, just as the continued use in the ordinary way produces different effects in different persons. In addition to the physiologic effect produced by smoking acetylsalicylic acid, the psychic effect in these individuals must not be disregarded.

ATROPINE POISONING

To the Editor:—A patient took an overdose of belladonna about one year ago and still complains of some of the symptoms of acute atropine poisoning. Is it possible for her to have a persistence of these symptoms after such a period of time? My pharmacology textbook states that atropine is fully eliminated in thirty-six hours in the urine. Is is possible that some of the belladonna has become stored somewhere in the body? Her pulse has been 100 or over ever since the poisoning. She breaks out with a measles-like rash over the back every now and then. She has lost her sense of smell.

M.D., California.

ANSWER.—The size of the overdose of belladonna is not given, so that it is difficult to predict the possible effects. Doses of belladonna, of both the tincture and the fluidextract in amounts up to ten times the U. S. P. doses, have been administered over a period of time without any harmful effects persisting after the drug was stopped.

Atropine, to which the effects of belladonna are mainly due, is rapidly absorbed by mucous membranes and the intestine. If atropine is given in ascending dosage to animals over a period of time, the drug may be stored in their flesh for several days and this flesh may produce atropine intoxication in other animals if it is consumed in sufficient quantities. It disappears rapidly from the blood and is excreted, mostly unchanged, entirely by the urine, mainly within thirty-six hours. In acute atropine poisoning the effects are felt in an hour or less, while in slower poisoning the full effect may not develop for one or two days. In both cases the effects gradually pass off. The mydriatic action may persist two weeks and the mental or psychic symptoms even longer. Idiosyncrasy to the belladonna group is quite frequent.

In the case described it is extremely improbable that the symptoms of acute belladonna poisoning could persist after a year. The rapid pulse and the occasional measles-like rash point to an unstable vasomotor system. The drug could not now be active on the vagus, and the rash is certainly not due to any retained atropine. It is more probable that the patient is of the nervous type and is susceptible to suggestion. If she can be really convinced that there is no longer any retention of the drug her symptoms may disappear.

MAGNETS FOR REMOVAL OF OCULAR FOREIGN BODIES

To the Editor:—Will you kindly furnish me with some information regarding magnets for removal of intra-ocular foreign bodies? Are the inexpensive magnets now advertised by reputable instrument houses satisfactory for this work? These work on alternating current with no rectifiers and, I believe, cost less than $15.

M.D., Alabama.

ANSWER.—The value of a magnet in the removal of intraocular foreign bodies depends on the strength and extent of the magnetic field. The more powerful the magnet, the simpler is the extraction and the less trauma does the eye suffer. For fairly superficial foreign bodies or for such as are located in the anterior chamber and can be removed through a simple keratome incision, the simpler and hence weaker magnets suffice. But for the foreign bodies that have penetrated deeply and as a result of time may be tightly embedded in ocular tissues, the most powerful magnet is none too strong. A comparison of the relative value of magnets is not available, but the most satisfactory of all the magnets on the market is the one that was devised a few years ago by Dr. Walter B. Lancaster of Boston.

PERSISTENT PAIN FROM SYPHILITIC PERIOSTITIS

To the Editor:—Kindly advise me how to control pain and tenderness in syphilitic periostitis that has apparently been resistant to analytic treatment. A woman aged 27, without a history of initial or secondary lesions, complained of pain in both shins at night. X-ray examination of the tibia was negative; serologic examination of the blood was positive, and the spinal fluid was normal. During the past year she has had thirty injections of mapharsen and of neoarsphenamine, sixty injections of bismuth and large doses of potassium iodide. The pain and tenderness in the tibia, clavicles and calvarium have never been relieved completely. Blood studies showed a slight hypochromic anemia but no signs of blood dyscrasia. Serologic examination of the blood is still positive.

M.D., Indiana.

ANSWER.—The persistence of the pain in the tibia, clavicles and calvarium following the amount of treatment that this patient has been given and the negative x-ray examinations would suggest some factor other than syphilis as the cause of the difficulty. As a rule the "night pains" of syphilis disappear readily following several injections of an arsenical preparation, but occasionally patients with osseous syphilis derive a more pronounced benefit from the intramuscular use of a mercurial preparation. If further search reveals no other explanation for the discomfort, a course of twenty injections of mercuric succinimide, one-sixth grain (0.01 Gm.), in conjunction with large doses of potassium iodide, up to fifty drops three times a day, should be tried.

ROENTGEN THERAPY IN BONE TUBERCULOSIS

To the Editor:—May I have a brief statement of the present value of roentgen therapy for bone and joint tuberculosis, especially the elbow joint and the ulna?

Arnold Bockar, M.D., Warwick, N. Y.

ANSWER.—Tuberculosis affecting bones and joints often responds well to roentgen treatment but, like tuberculous processes in general, the response is usually slow. As in all chronic inflammations that are amenable to roentgen treatment, tuberculous lesions of bones and joints are best treated by doses corresponding to about three fourths of an erythema dose, and the treatment should be repeated regularly at intervals of three or four weeks. At first (if sinuses are present) there may be increased drainage for a short time; later the drainage diminishes steadily, and in the course of from six to twelve months, and occasionally longer, healing may take place (Desjardins, A. U.: The Action of Roentgen Rays on Tuberculous Processes, *Wisconsin M. J.* **34**:719 [Oct.] 1935).

Medical Examinations and Licensure

COMING EXAMINATIONS

NATIONAL BOARD OF MEDICAL EXAMINERS SPECIAL BOARDS

Examination of the National Board of Medical Examiners and Special Boards were published in THE JOURNAL, October 21, page 1588.

STATE AND TERRITORIAL BOARDS

ALABAMA: Montgomery, June 18-20. Sec., Dr. J. N. Baker, 519 Dexter Ave., Montgomery.

ARIZONA: *Basic Science.* Tucson, Dec. 19. Sec., Dr. Robert L. Nugent, University of Arizona, Tucson.

ARKANSAS: *Medical (Regular).* Little Rock, Nov. 9-10. Sec., Dr. D. L. Owens, Harrison. *Medical (Eclectic).* Little Rock, Nov. 9-10. Sec., Dr. Clarence H. Young, 1415 Main St., Little Rock.

CALIFORNIA: *Oral examination* (required when reciprocity application is based on a state certificate or license issued ten or more years before filing application in California), San Francisco, Nov. 15. Sec., Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento.

CONNECTICUT: *Medical (Regular). Examination.* Hartford, Nov. 14-15. *Endorsement.* Hartford, Nov. 28. Sec., Dr. Thomas P. Murdock, 147 W. Main St., Meriden. *Medical (Homeopathic).* Derby, Nov. 14-15. Sec., Dr. Joseph H. Evans, 1488 Chapel St., New Haven.

DELAWARE: *Examination.* Dover, July 9-11. *Reciprocity.* Dover, July 16. Sec., Medical Council of Delaware, Dr. Joseph S. McDaniel, 229 S. State St., Dover.

FLORIDA: Jacksonville, Nov. 13-14. Sec., Dr. William M. Rowlett, Box 786, Tampa.

INDIANA: Indianapolis, June 18-20. Sec., Board of Medical Registration and Examination, Dr. J. W. Bowers, 301 State House, Indianapolis.

KANSAS: Topeka, Dec. 12-13. Sec., Board of Medical Registration and Examination, Dr. J. F. Hassig, 905 N. 7th St., Kansas City.

KENTUCKY: Louisville, Dec. 5-7. Sec., State Board of Health, Dr. A. T. McCormack, 620 S. Third St., Louisville.

MAINE: Portland, Nov. 14-15. Sec., Board of Registration of Medicine, Dr. Adam P. Leighton, 192 State St., Portland.

MARYLAND: *Regular.* Baltimore, Dec. 12-15. Sec., Dr. John T. O'Mara, 1215 Cathedral St., Baltimore. *Homeopathic.* Baltimore, Dec. 12-13. Sec., Dr. John A. Evans, 612 W. 40th St., Baltimore.

MASSACHUSETTS: Boston, Nov. 14-16. Sec., Board of Registration in Medicine, Dr. Stephen Rushmore, 413-F State House, Boston.

MISSISSIPPI: *Reciprocity.* Jackson, December. Asst. Sec., State Board of Health, Dr. R. N. Whitfield, Jackson.

NEBRASKA: Lincoln, Nov. 24-25. Dir., Bureau of Examining Boards, Mrs. Clark Perkins, 1009 State Capitol Bldg., Lincoln.

NEVADA: *Written examination and reciprocity with oral examination.* Carson City, Nov. 6. Sec., Dr. John E. Worden, 311 W. Robinson St., Carson City.

NEW HAMPSHIRE: Concord, March 14-15. Sec., Dr. T. P. Burroughs, State House, Concord.

NORTH CAROLINA: *Reciprocity and Endorsement.* Raleigh, Dec. 11. Sec., Dr. W. D. James, Hamlet.

NORTH DAKOTA: Grand Forks, Jan. 2-5. Sec., Dr. G. M. Williamson, 4½ S. Third St., Grand Forks.

OHIO: Columbus, Dec. 5-7. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus.

OKLAHOMA: *Basic Science.* Oklahoma City, Nov. 6. Sec. of State, Hon. C. C. Childress, State Capitol, Oklahoma City. *Medical.* Oklahoma City, Dec. 13. Sec., Dr. James D. Osborn, Jr., Frederick.

OREGON: *Basic Science.* Portland, Feb. 24. Sec., State Board of Higher Education, Mr. Charles D. Byrne, University of Oregon, Eugene.

PENNSYLVANIA: Philadelphia, January. Dir., Bureau of Professional Licensing, Dr. James A. Newpher, Department of Public Instruction, 358 Education Bldg., Harrisburg.

SOUTH CAROLINA: Columbia, Nov. 14. Sec., Dr. A. Earle Boozer, 505 Saluda Ave., Columbia.

SOUTH DAKOTA: Pierre, Jan. 16-17. Dir., Medical Licensure, Dr. G. J. Van Heuvelen, State Board of Health, Pierre.

TEXAS: Austin, Nov. 20-22. Sec., Dr. T. J. Crowe, 918-19-20 Mercantile Bldg., Dallas.

VERMONT: Burlington, Feb. 13-15. Sec., Board of Medical Registration, Dr. W. Scott Nay, Underhill.

VIRGINIA: Richmond, Dec. 13. Sec., Dr. J. W. Preston, 30½ Franklin Road, Roanoke.

WEST VIRGINIA: Fairmont, Nov. 6-8. Sec., Public Health Council, Dr. Arthur E. McClue, State Capitol, Charleston.

WISCONSIN: *Basic Science.* Milwaukee, Dec. 2. Sec., Professor Robert N. Bauer, 3414 W. Wisconsin Ave., Milwaukee. *Medical.* Madison, Jan. 9-11. Sec., Dr. E. C. Murphy, 314 E. Grand Ave., Eau Claire.

Tennessee June Examination

Dr. H. W. Qualls, secretary, Tennessee State Board of Medical Examiners, reports the written examination held at Knoxville, Memphis and Nashville, June 15-16, 1939. The examination covered ten subjects and included 100 questions. An average of 75 per cent was required to pass. One hundred and eighteen candidates were examined, all of whom passed. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
Georgetown University School of Medicine		(1937)	86.1
Howard University College of Medicine		(1937)	83.8, 87.9, 89.2, (1938) 88.4
Harvard Medical School		(1939)	84.6
St. Louis University School of Medicine		(1938) (1939)	82.6, 80.6, 83.9, 85.1, 85.5, 85.6, 85.7, 85.8, 86.3, 87.1, 87.2, 87.6, 87.7, 89.6
Hahnemann Med. College and Hospital of Philadelphia		(1937)	85.2
Jefferson Medical College of Philadelphia		(1938)	86.4
University of Pennsylvania School of Medicine		(1939)	86.5
Meharry Medical College		(1939)	85, 85.6, 85.8, 86, 86, 86.2, 86.3, 86.5, 86.6, 86.6, 86.8, 86.8, 87, 87.1, 87.3, 87.4, 87.4, 87.5, 87.6, 87.7, 87.8, 87.9, 88.1, 88.2, 88.4, 89, 89.2, 89.3, 89.8, 91.6
University of Tennessee College of Medicine		(1937) (1939)	88.7, 84.2, 84.5, 85, 85.3, 85.3, 85.7, 85.9, 85.9, 86.9, 88, 88, 88, 88, 88.2, 88.7, 88.8, 89, 89.1, 89.4, 89.4, 90.7, 91.5, 93.5
Vanderbilt University School of Medicine		(1931) (1939)	85.8, 82.3, 82.6, 83.9, 84.3, 84.3, 85.2, 85.3, 85.5, 85.8, 85.9, 86, 86.1, 86.2, 86.3, 86.4, 86.7, 87, 87, 87, 87.1, 87.1, 87.3, 87.5, 87.7, 87.7, 87.9, 87.9, 88, 88.1, 88.2, 88.6, 88.6, 88.7, 89.3, 89.9, 90, 90.4, 91.8, 92.3
McGill University Faculty of Medicine		(1937)	94.3

Thirteen physicians were licensed by endorsement from March 14 through July 18. The following schools were represented:

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
University of Arkansas School of Medicine		(1936)	Arkansas
George Washington University School of Medicine		(1927)	Dist. Colum.
University of Georgia School of Medicine		(1936)	Georgia
College of Physicians and Surgeons of Chicago		(1912)	Indiana
University of Illinois College of Medicine		(1930)	Mississippi
Louisiana State University School of Medicine		(1939)	Louisiana
Tulane University of Louisiana School of Medicine		(1936, 2)	Louisiana
University of Maryland School of Medicine and College of Physicians and Surgeons		(1937)	Maryland
University of Michigan Medical School		(1933)	Michigan
Jefferson Medical College of Philadelphia		(1934)	Penna.
University of Pennsylvania School of Medicine		(1936)	Penna.
Medical College of the State of South Carolina		(1937)	S. Carolina

North Dakota July Report

Dr. G. M. Williamson, secretary, North Dakota State Board of Medical Examiners, reports the oral and written examination held at Grand Forks, July 4-7, 1939. The examination covered twelve subjects and included ninety questions. An average of 75 per cent was required to pass. Nine candidates were examined, all of whom passed. One physician was licensed by reciprocity and two physicians were licensed by endorsement. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
Northwestern University Medical School		(1938) 85.4, (1939)	81.3*
Harvard Medical School		(1935)	85.2
University of Minnesota Medical School		(1936)	80.8
University of Oregon Medical School		(1938)	79.2
Univ. of Western Ontario Medical School		(1936) 75.4, (1938)	78.4
McGill University Faculty of Medicine		(1936)	80.8
Regia Università di Napoli Facoltà di Medicina e Chirurgia		(1936)	80.1

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Loyola University School of Medicine		(1926)	Illinois

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
College of Medical Evangelists		(1928)	N. B. M. Ex.
Harvard Medical School		(1929)	N. B. M. Ex.

* This applicant has received the M.B. degree and will receive the M.D. degree on completion of internship.

Minnesota June Report

Dr. Julian F. Du Bois, secretary, Minnesota State Board of Medical Examiners, reports the written, oral and practical examination held at Minneapolis, June 20-22, 1939. The examination covered twelve subjects and included sixty written questions. An average of 75 per cent was required to pass. Fifty-six candidates were examined, all of whom passed. Four physicians were licensed by reciprocity and two physicians were licensed by endorsement. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
Emory University School of Medicine		(1937)	85.1
Loyola University School of Medicine		(1939)	89.6
Northwestern University Medical School		(1936) 86.5, (1938)	91.2
Rush Medical College		(1936) 85.3, (1938)	87.3, 88.6
State University of Iowa College of Medicine		(1938)	89
University of Michigan Medical School		(1937)	87.2
University of Minnesota Medical School		(1938)	84.4, 85,* 86.2,* 87,* 87.1, 88,* 89.6,* (1939) 82.2, 83.4, 83.5, 84.2,* 84.5,* 85, 85.1,* 85.1, 85.5,* 86,* 86, 86.5, 86.6,* 86.6, 87.1,* 87.1,* 87.1, 87.3,* 87.5,* 87.5,* 88.1, 88.3,* 88.3,* 88.3, 89,* 89.1, 89.2, 90.5, 91.1,* 92.1*
Washington University School of Medicine		(1937)	88.1
Cornell University Medical College		(1935)	89.1
University of Oregon Medical School		(1938)	86.4
University of Pennsylvania School of Medicine		(1936)	90

Marquette University School of Medicine	(1939)	85.1, 87, 89.6
University of Wisconsin Medical School	(1936) 88.1, (1938)	83.5
University of Manitoba Faculty of Medicine	(1935)	85.6

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
State University of Iowa College of Medicine	(1932),	(1936)	Iowa
Johns Hopkins University School of Medicine	(1928)		Louisiana
University of Minnesota Medical School	(1938)		Washington

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Northwestern University Medical School		(1939)	N. B. M. Ex.
New York University College of Medicine		(1936)	N. B. M. Ex.

*This applicant has received the M.B. degree and will receive the M.D. degree on completion of internship.

Book Notices

Menstrual Disorders: Pathology, Diagnosis and Treatment. By C. Frederic Fluhmann, B.A., M.D., C.M., Associate Professor of Obstetrics and Gynecology, Stanford University School of Medicine, San Francisco, California. Cloth. Price, $5. Pp. 329, with 119 illustrations. Philadelphia & London: W. B. Saunders Company, 1939.

This excellent monograph is ineptly named, since the first 152 pages deal with the processes of normal menstruation; viz., the morphologic changes, the physiology and the mechanism of the hormonal controls of the menstrual process. The opening chapter is a splendid historical review of the concepts of menstruation. The morphologic changes and the histopathology are excellently written and particularly well illustrated. The complicated pictures of the hormonal control of menstruation are presented clearly and simply and the references to the literature and bibliography are almost all inclusive. The latter half of the book deals with the pathology of menstruation rather adequately in the light of our present knowledge. It leaves something to be desired, however, in its style, there being considerable overlapping and repetition. These remarks should not detract from the value of the work and the appeal which it should have for the practitioner of medicine. It is by far the best discussion of this problem for the general practitioner that is available today.

Report on Cardiazol Treatment and on the Present Application of Hypoglycæmic Shock Treatment in Schizophrenia. By W. Rees Thomas, M.D., F.R.C.P., D.P.M., Medical Senior Commissioner of the Board of Control, and Isabel G. H. Wilson, M.D., M.R.C.P., D.P.M., Medical Commissioner of the Board of Control. Board of Control (England and Wales). Paper. Price, 30 cents. Pp. 70. New York: British Library of Information; London: His Majesty's Stationery Office, 1938.

This is a remarkable book which contains a wealth of accurate data, gathered from dependable and well known authors, a book which bears the backing for accuracy of the English board of control.

The authors tried to be objective as far as is humanly possible and to refrain from personal prejudice. Matter of fact objection is raised to taking very much from the literature of the originators for granted and neglecting to point to the differences which are obvious in the "history" of the development of the treatment as well as the theory. The technic and the results from various authors are stated as completely and efficiently as possible. It seems sometimes that the description of the rather simple technic of the shock produced through metrazol alone is too detailed and elaborately stated. With the same extreme accuracy, the authors describe the technic of the shock produced through insulin treatment, although they had already done so in their first publication. The many variations and possibilities are described and the experiences of the authors are freely mentioned. A wealth of reports from the literature and experiences are presented in such a manner that one interested in a particular question can easily find the details. The book is certainly helpful to any one who needs advice in some particular difficulty.

In the enumerating of the complications and dangers which occur with the use of metrazol alone, the authors are rather too short. They did not cover the numerous publications in America about this subject. In neglecting these and in bringing in just the statement from Meduna, they have made the danger of this treatment appear in an entirely different light from that in which we see it in this country. In reporting the results of treatment by metrazol alone and by insulin alone, they display the same shortcomings. It seems rather strange that the authors, reporting about American results, neglected the first hand reports, for example the official statistics from the Mental Hygiene Department of the state of New York, published by Superintendent Ross, and used rather the information about the American material given them by Dr. Meduna. They should not have chosen this volunteered information just because it was more accessible. Availability is not sufficient to secure preciseness.

In such a book one expects to find first hand reports on results. By neglecting them the authors create an impression concerning the experience in America, especially with metrazol treatment, entirely opposite to the real situation. The fact that the authors preferred to take their statistics for this country from hearsay instead of using the original official reports from the state of New York, covering a great number of cases, spoils the good record of this book. If they had done it properly, it would have shown, as reflected now from the literature and as Sakel pointed out long ago, that the epileptic fit is valuable as symptomatically used by himself but does not have vast importance for a permanent cure.

Annual Reprint of the Reports of the Council on Pharmacy and Chemistry of the American Medical Association for 1938 with the Comments That Have Appeared in The Journal. Cloth. Price, $1. Pp. 123. Chicago: American Medical Association, 1939.

This volume tells why the Council on Pharmacy and Chemistry has rejected or why it has not yet accepted the products considered in a given year. In addition it may contain authoritative monographs on the current status of such pharmacologic or therapeutic questions as may have been raised in the course of the Council's deliberations. The last named category is represented in the current volume by the report on the omission from N. N. R. of all creosote and guaiacol compounds. After extensive consideration of the literature and of data furnished by the pharmaceutic firms whose products stood accepted, the Council came to the conclusion that the oral use of such preparations for action on the respiratory passages could be defended only on empirical grounds and that, therefore, they are not a necessary part of the modern therapeutic armamentarium.

Another status report in this volume is that on the use of colloidal sulfur in the treatment of chronic arthritis. After considering the referee's exhaustive report of the literature, the Council concluded that claims for the use of colloidal sulfur in the treatment of chronic arthritis are at present unwarranted and cannot be recognized until satisfactory evidence is available with regard to the following factors: the determination of the types of cases in which it may be used with a fair expectation of benefit; the determination of the chief contraindications; the determination of the optimal dosage; the determination of the best form in which sulfur is to be used, whether as food rich in sulfur, as ordinary sulfur administered orally or as colloidal sulfur for intramuscular or intravenous injection.

Among the preliminary reports in this volume, that on Sulfapyridine, which carries a special article by Dr. Perrin H. Long, a Council member who has been much concerned with the work on this drug, is perhaps of greatest interest. After the Food and Drug Administration had released the drug for the use of physicians early in 1939, the Council accepted various brands for inclusion in New and Nonofficial Remedies and in connection with the published descriptions issued another status report (THE JOURNAL, May 6, 1939, p. 1830) based on a questionnaire sent to men who had been prominent in the experimental use of the drug. This report, no doubt, will appear in the next volume of reprinted Council reports.

The status report on Immune Globulin (Human) appearing in this volume is another example of the procedure just mentioned. It appeared in connection with the published description of accepted brands and followed a preliminary report published in 1935. The longer period of abeyance in which this product was held is noteworthy.

The Council's continuous and, at present, increasing interest in matters of drug nomenclature is attested by the following reports appearing in this volume: Nonproprietary Synonym for Benzedrine and Benzedrine Sulfate (amphetamine and amphetamine sulfate); Sulfapyridine (the nonproprietary name). Questions of nomenclature were involved in the following reports of omission or rejection: Abbott's A-B-D Malt Extract with Cod Liver Oil and Viosterol Omitted from N. N. R.

(unwarranted implied claim for effect of vitamin B complex component); Nupercainal-"Ciba" Not Acceptable for N. N. R. (false implications concerning actual relationship to the accepted Nupercaine); Quinoliv Not Acceptable for N. N. R. (coined proprietary name for unoriginal mixture); Sedormid Not Acceptable for N. N. R. (therapeutically suggestive name); Fru-T-Lax Not Acceptable for N. N. R. (misleading and inadequately descriptive name). Of course, other objectionable features were concerned in the reasons for rejection but the question of nomenclature was given much weight in each consideration.

Attention should be called to the excellent status report on Ergonovine prepared for the Council by Dr. Ralph G. Smith. It will be recalled that Ergonovine is the nonproprietary name adopted by the Council for the new ergot alkaloid which had been given various names by various investigators. Dr. Smith's article is a compendious study of the new drug and its relation to ergot therapy. The Council's name, Ergonovine, appears to be in the process of being generally adopted.

Methoden der Virusforschung. Von Prof. Dr. Henrique da Rocha-Lima, Direktor des Staatl. Biologischen Instituts, São Paulo, Dr. José Reis und Dr. Karl Silberschmidt. Diese Abhandlung erscheint zugleich als Lieferung 480 in Abt. XII, Teil 2 des Abderhaldenschen Handbuchs der biologischen Arbeitsmethoden. Cloth. Price, 24.60 marks. Pp. 384, with 54 illustrations. Berlin & Vienna: Urban & Schwarzenberg, 1939.

This volume has an attractive format and contains excellent subject and author indexes. Almost half the text describes the technics of investigations of plant viruses; the remainder gives most of the procedures involved in studies on viruses derived from man and the lower animals, including those of the rickettsial diseases and pleuropneumonia bovum. At the end of each section are numerous references which add definite value. Of the authors, da Rocha-Lima has the respect and esteem of his colleagues for his original contributions to the subject of rickettsiae, particularly those associated with typhus fever, and Reis has studied avian and virus pathology. Silberschmidt is engaged in investigations on plant viruses, especially the study of the immunologic reactions of plants to infection. Within the last eleven years a number of comprehensive treatises dealing with the general aspects of viral agents and the diseases induced by them have been presented to the public. From the first, issued under the editorship of Rivers and of the British Medical Research Council, to those recently published under the direction of Levaditi and of Doerr, methods were described therein only as part of the subjects dealt with. In the present book a special contribution for the advanced student and investigator on virus technology is achieved for the first time. It is to be regretted that its contents are limited. With such limitation, omissions of certain established technics can occur. In the section on inclusion bodies, micro-incineration and the important subject of inclusions produced by nonviral materials are not considered; nor is mentioned, in the section on preparation of materials for animal inoculation, the value of broth as a diluent and suspending fluid or the use of centrifugation for clearing material from concurrent bacteria. Not all the routes of animal inoculation are given. Nor, in the section on determination of size, is the fact stressed that two important considerations are involved in obtaining correct end points: (1) infectivity of the virus in question and (2) its concentration. It would have been desirable, furthermore, to offer centrifugation as a means for recovering virus from neutral serum-virus mixtures and to give explicit procedures of serum-virus protection tests. However, the difficulty should be recognized of preparing a work such as this, on a subject which is so energetically studied, with such great progress. Although other omissions than those mentioned occur, the description of technics in the study of plant viruses, of ultrafiltration, of inclusion bodies and of tissue and embryonated egg cultivation are superior. What is stated in the text (including illustrations) has apparently been taken from original articles—a fact of utmost importance in creating a solid book. Descriptions of many of the most modern developments are included, such as purification of viruses by ultracentrifugation, stream double refraction, the Muench law, the electronmicroscope and light reactions. The present volume should prove of value to phytopathologists who are investigating viruses and should be useful in supplementing existing books on these agents.

William Alanson White: The Autobiography of a Purpose. By William A. White, M.D., A.M., Sc.D. With an introduction by Ray Lyman Wilbur. Cloth. Price, $3. Pp. 293, with portrait. Garden City, New York: Doubleday, Doran & Company, Inc., 1938.

This is a stimulating and inspiring book which succeeds in being true to its subtitle, "The Autobiography of a Purpose". It is written in the first person with engaging candor and frankness. The author has apparently succeeded in taking an objective attitude toward his life, his personality and his purpose. There is no egotism in it nor any self deprecation.

After a preface and introduction in which he gives his reasons for writing the book, he divides his material into three parts. In the first of these he deals with the origin and early expressions of his purpose in life, including chapters on his first fifteen years, his college life, medical school and internship, the beginning of his career in psychiatry at the New York State Hospital at Binghamton and the beginning of his work at St. Elizabeth's Hospital, Washington. Part two deals with the building of St. Elizabeth's Hospital, the development of personnel, factors in administration, his correspondence, consultations, extramural activities, medicolegal experience and teaching. In this part are found chapters on the development of modern knowledge about dementia paralytica and the first use of malaria therapy in the United States. The closing chapter in this part deals with patients he knew and whom he designates characteristically as his friends.

Throughout the book one sees evidence of what must have been the chief characteristic of the author's personality, namely an insatiable interest in human beings and a broad and catholic sympathy for all mankind. His chapter on correspondence shows this universal human sympathy; he never failed to answer letters even from persons of obviously unsound mind. His medicolegal experience is characterized by a constant refusal, after one unsatisfactory incident, to testify for the prosecution on the ground that a doctor's business is to salvage human life and never to assist in its condemnation.

What may be regarded as the key to his life and to his philosophy is found near the end of the book (page 254) in his statement that "ideas are quite as real as chairs and tables and very often at least, if not always, very much more important." He places great emphasis on the modern psychiatric conception of the idea of the totality of the individual as opposed to distinctions between body and mind and he believes that the next great step forward in medicine will be along the line of further acceptance and development and the practical application of this concept.

The book is a valuable contribution both to professional and to popular literature in the field of mental hygiene and psychiatry. No layman can read it without a better understanding of the phenomena of mental disease and a broader and deeper sympathy with those unfortunates commonly known as "crazy people." No doctor can read it without being a better clinician and a wiser physician.

Die Grundlagen unserer Ernährung und unseres Stoffwechsels. Von Emil Abderhalden, o. ö Professor der Physiologie und der physiologischen Chemie an der Martin Luther-Universität Halle a. S. Fourth edition. Paper. Price, 6 marks. Pp. 193. Berlin: Julius Springer, 1939.

This is an interesting account of the relation between plant and animal nutrition, the nature of the inorganic and organic nutrients, the chemical changes which occur in the intermediary metabolism of individual nutrients, the deficiency diseases, the nutritional significance of the milling of cereals, and the energy requirements of man for work. The author's well known facility as a writer insures an entertaining style. The brevity of the volume necessitated a superficial treatment of the great number of facts mentioned. There is no bibliography. Although the preface is dated January 1939, the book gives the impression that it was written at least two years ago and also that the author is not familiar with recent American researches in nutrition. For example, manganese is mentioned as occurring in the body and nothing is said of its physiologic role, which represents the major discovery of practical importance in poultry production in recent years. There is no mention of the anemia due to cobalt deficiency. Nicotinic acid in relation to pellagra is not mentioned. There are available in English several more timely books on nutrition.

The Diagnosis and Treatment of Diseases of the Thyroid. By James H. Means, M.D., Jackson Professor of Clinical Medicine, Harvard University, and Edward P. Richardson, M.D., John Homans Professor of Surgery, Harvard University, Boston. (Reprinted from Oxford Monographs on Diagnosis and Treatment.) Cloth. Price, $5. Pp. 367, with 51 illustrations. New York, Toronto & London: Oxford University Press, 1938.

This volume is a series of monographs, each covering a particular phase of thyroid disease and each complete in itself. From the nature of this compilation there is much overlapping and repetition of material. As a whole, the book has given in an interesting manner a true description of goiter throughout the ages. The historical side of goiter and the part that each man has played in the development of our present knowledge is given in detail. The monograph on exophthalmic goiter is thorough. Every theory of the cause is described and criticized; every diagnostic measure is explained and evaluated; a rational understanding of the probable causes and principles of treatment is achieved. Detailed case histories of hospital patients, covering twenty-three years, are given to contrast the diagnosis and treatment at different periods. The book gives little space to cretinism and congenital hypothyroidism, which in some sections of the country are of greater importance than is indicated. These monographs were copyrighted in 1929 and few references to work done in the past ten years have been added.

Über die Wirkung von Erhöhung der Körpertemperatur auf den Kreislauf: Experimentelle Untersuchungen über die Kreislaufverhältnisse bei Erwärmung von Kaninchen mit besonderer Berücksichtigung der Blutdruckregulation. Inauguraldissertation. Von Runar Brenning. Paper. Pp. 147, with 37 illustrations; Appendix, pp. 47. Uppsala: Almqvist & Wiksells Boktryckeri-A.-B., 1938.

This monograph reports numerous animal experiments, largely with rabbits, on the relationships and mechanisms of circulatory changes associated with elevated body temperatures. There are included many graphs and tabulations. The citations in the literature are more international than is usual with continental publications. Brenning seems to have evolved a rather complex and quite theoretical concept anent the mechanisms involved. The experimental data do not by any means prove his contentions; they merely suggest that his may be one of several possible theories to cover the facts. The factual portion of the work represents extensive and painstakingly careful studies. The monograph will be of special interest chiefly to investigators in the physiology of the circulation and thermoregulation. The clinical applications of the contentions are as yet remote.

Zur Epidemiologie der Kinderlähmung: Eine statistische Analyse. Von Birger Jönsson. Acta Medica Scandinavica, Supplementum XCVIII. Paper. Pp. 193, with 13 illustrations. Stockholm: Esselte Aktiebolag, 1938.

This book contains an analysis of one epidemic of poliomyelitis which occurred during the years 1935-1937. They had 266 cases of paralysis, sixty-two abortive cases and 129 suspects. No epidemics had occurred in this area previous to 1935. Jönsson considers that the maximum of dissemination of poliomyelitis lies between the maximum of the intestinal diseases typhoid and dysentery on the one hand and contact diseases such as diphtheria and scarlet fever on the other hand. It was found that the disease did not follow the waterways but was most common in areas with the most crowded population.

Medical Microbiology. By Kenneth L. Burdon, Ph.B., Sc.M., Ph.D., Assistant Professor of Immunology and Bacteriology, Louisiana State University School of Medicine, New Orleans. Cloth. Price, $4.50. Pp. 763 with 120 illustrations. New York: Macmillan Company, 1939.

This book is a revision and enlargement of the Textbook on Bacteriology by the same author. It was apparently written to suit the requirements of the author in his own classroom. Part I is devoted to the historical aspects and other phases of general bacteriology; part II gives brief instructions for laboratory routine; part III presents sources and modes of infection, with brief instructions for procedures in the operating room and the home; part IV deals with the microbiology of some of the more important communicable diseases. Five appendixes contain instructions for the preparation of culture mediums and stains and procedures for immunologic tests. Without doubt the book is satisfactory to the needs of the author, but the brevity of description in some cases is unfortunate. For instance, the student is instructed to adjust Endo's medium to p_H 7.4, but the method of making such an adjustment is omitted. In the chapter on germicides there are a number of rather broad statements concerning some of the commercial preparations, such as "lysol is one of the most valuable disinfectants known" and "hexylresorcinol, a compound related chemically to phenol, and marketed in a mixture called S. T. 37, is an effective disinfectant." Phenol coefficients are omitted for all germicides mentioned, as are also the various methods of testing the efficiency of germicides.

Studien über hereditäre, multiple Epiphysenstörungen. Av Seved Ribbing. Akademisk avhandling, för vinnande av medicine Doktorsgrad, Upsala. Paper. Pp. 107, with 94 illustrations. Helsingfors, 1937.

The introduction contains a review of the literature of primary disturbances of ossification. This is detailed, covering general conditions such as achondroplasia and cretinism, to localized aseptic necroses, osteochondritis dissecans, osteochondritis deformans coxa (coxa plana) and kyphosis dorsalis juvenilis. The material of the study consists of hereditary anomalies, and the author describes the occurrence of congenital anomalies in six members of a large family. These anomalies are thoroughly studied and elaborately described. They involve multiple joint epiphyses, but especially the metacarpophalangeal articulations, knees, hips and vertebral bodies. The x-ray appearances, which he divides into two principal types, namely anatomic variations and anomalies on the one hand and destructive lesions similar to the osseous aseptic necroses on the other, are most elaborately presented. There are unfortunately no microscopic investigations to correlate with the clinical and x-ray studies. As a monograph on a rather circumscribed subject, built on a comparatively small clinical material, the book is carefully and painstakingly compiled and an interesting contribution to the rather dark field of primary epiphysial growth disturbances.

Pulmonary Tuberculosis: A Synopsis. By Jacob Segal, M.D., Physician in Charge of Fordham Hospital Tuberculosis Clinic, New York. Foreword by the late Pol N. Coryllos, M.D., F.A.C.S. Cloth. Price, $2.75. Pp. 150, with 21 illustrations. New York, Toronto & London: Oxford University Press, 1939.

This is a brief presentation on pulmonary tuberculosis. It contains numerous illustrations, mostly prepared from x-ray films of the chest. Approximately half a page is devoted to the first infection type of tuberculosis and the remainder of the book to reinfection clinical forms of the disease. Various phases of the examination for tuberculosis, such as the tuberculin test, symptoms, physical signs and x-ray films, are outlined. Under treatment such subjects as hygienic regimen, fresh air, diet, drugs and physical therapy are briefly discussed. The discussion of collapse therapy includes artificial pneumothorax, oleothorax, pneumonolysis, phrenicectomy and thoracoplasty. In approximately ten pages prevention is discussed, and considerable emphasis is placed on predisposing or contributing causes of tuberculosis, such as living in poorly ventilated and damp houses.

Heart Patients: Their Study and Care. By S. Calvin Smith, M.D., Sc.D. Cloth. Price, $2. Pp. 166. Philadelphia: Lea & Febiger, 1939.

The author states that the purpose of this volume is to present with clarity and precision all that is useful in the older teachings on impairment of the heart and all that is practical in the maze of modern methods in investigation of the heart. This book is divided into twenty-two chapters dealing with the history and physical examination and the more important forms of cardiac disability. Chapters are also devoted to treating the heart patient rather than treating the heart, what heart patients wish to know and selecting nurses for heart patients. Many of the chapters fall far short of meeting the author's objective. Moreover, there are a number of statements pertaining to important subjects to which serious objections may be taken. Two examples will suffice. The first of these appears in the first paragraph pertaining to electrocardiography, on page 57: "In either indicting a heart or in establishing its innocence, while the patient furnishes testimony and the physician weighs the evidence, the case must be brought to trial in the court of first appeal—cardiography (electrocardiography). Cardiography is also the court of last resort in a differential diagnosis of heart

conditions." The second appears on page 119 in a discussion of the athlete's heart: "From a circulatory standpoint competitive athletics should absolutely be interdicted at schools and colleges. Struggles for supremacy are crippling to the hearts of youth."

Hereditary and Environmental Factors in the Causation of Manic-Depressive Psychoses and Dementia Praecox. By Horatio M. Pollock, Director of Mental Hygiene Statistics, New York State Department of Mental Hygiene, Benjamin Malzberg, Senior Statistician, New York State Department of Mental Hygiene, and Raymond G. Fuller, Director of Research, New York State Committee on Mental Hygiene of the State Charities Aid Association. Cloth. Price, $2.50. Pp. 473. Utica, New York: State Hospitals Press, 1939.

This volume represents a study of the prehospital history of patients with manic-depressive psychoses and dementia praecox admitted for the first time to the Utica State Hospital in 1928, 1929 and 1930. There are eight chapters: the first deals with a review of studies of the inheritance of mental disease, the second with family stock of manic-depressive patients, the third with the query "Do mendelian laws apply to the inheritance of manic-depressive psychoses?" the fourth with family stock of dementia praecox patients, the fifth with comparative studies of the prevalence of mental disease among relatives of patients and among the general population, and the sixth and seventh chapters with environmental factors in both manic-depressive psychoses and dementia praecox. The eighth chapter contains a summary and conclusions. There is an excellent bibliography and index. One finds in this book a reasonable discussion of these two most important and common mental diseases. Many of the controversial questions are not answered by the authors, but they plead for more research so that in the end there may be an adequate conception of the causative factors in mental disease.

Elektrodiagnostik. Von Dr. B. Neoussikine und Dr. D. Abramowitsch. Cloth. Price, 12 Swiss francs. Pp. 242, with 30 illustrations. Berne: Medizinischer Verlag Hans Huber, 1939.

This is a thorough discussion of eletrodiagnosis. It is written in simple, clear and concise German. There are six chapters and one appendix with thirty illustrations. The first chapter deals with the principles of galvanic and faradic currents. The second part discusses the methods of electrical testing with both currents and chronaxia. The third and fourth chapters list the results of the electrical tests. Normal and pathologic chronaxia values are given for all muscles as well as the variabilities in complete or partial lesions of nerves. The fifth part deals with the use of electricity in examining sensation and sense organs, as the optic, vestibular and acoustic nerves. The sixth chapter discusses testing of the vegetative nervous system and the spinal reflexes. The appendix includes a brief consideration of the impedance angle, psychogalvanic reflex, electrocardiography, electromyography and electro-encephalography. The book is highly recommended to all neurologists, physiologists and physical therapists.

Intracranial Tumors of Infancy and Childhood. By Percival Bailey, Douglas N. Buchanan and Paul C. Bucy. Cloth. Price, $5. Pp. 598, with 116 illustrations including 23 plates. Chicago: University of Chicago Press, 1939.

This is a needed and desirable monograph. It is the result of a study of an unselected series of 100 consecutive cases from infancy to the sixteenth birthday. All the cases were verified either by study of specimens removed at operation or at necropsy. It consists of fifteen chapters, a bibliography of 483 references, an author and subject index and excellent illustrations of gross specimens, ventriculographic studies and patients. Ependymomas, malignant and benign tumors of the cerebellum, gliomas of the brain stem, optic chiasm and hypothalamus, tumors of the cerebral hemispheres, craniopharyngiomas, tumors of the pineal body and miscellaneous tumors are discussed in detail. There are chapters on general pathology, symptomatology, differential diagnosis and technic and the results of treatment. There are excellent microscopic sections of the various tumors. The book should be read by every neurologist, neurosurgeon and neuropathologist because it will prove to be an excellent reference. It contains so much valuable information, suggestions and points that studying it is the only way to appreciate it.

Blood Group Tests as Evidence of Non-Paternity in Illegitimacy Cases. By Clyde E. Keeler, B.S., M.A., M.S., Instructor in the Howe Laboratory of the Harvard Medical School, Boston. Paper. No pagination. Boston: Robert C. True, Massachusetts Society for the Prevention of Cruelty to Children, 1939.

In this small pamphlet the principles underlying the application of the Landsteiner blood groups and M-N types in disputed parentage are outlined briefly and in elementary fashion. This will serve as an easy introduction to the subject. Unfortunately there are a number of mistakes. Thus the author seems to have the impression that the transfusion of blood from an individual of type M into an individual belonging to type N may give rise to iso-antibodies for M, so that subsequent transfusion of type M blood may be dangerous. Actually the formation of immune antibodies for M or N has never been observed, despite the fact that hundreds of thousands of transfusions are given every year.

Chronic Arthritis. By Robert T. Monroe, A.B., M.D., Associate in Medicine, Harvard University, Boston. Edited by Henry A. Christian, A.M., M.D., LL.D., Hersey Professor of the Theory and Practice of Physic, Harvard University, Boston. [Reprinted from Oxford Loose-Leaf Medicine.] Cloth. Price, $2. Pp. 84. New York, London & Toronto: Oxford University Press, 1939.

The author of this small volume is an internist, and his book reveals a good sound fundamental knowledge of arthritis. Scientific presentation with adherence to facts and absence of enthusiasm and fads in therapy make this volume exceptionally valuable. Nothing new is added and nothing is omitted. It is written in a concise style and no useless material burdens the reader. Chronic arthritis is divided into three types, atrophic, hypertrophic and periarticular. These are discussed separately from the point of view of etiology, pathology, diagnosis and treatment. Here chronic arthritis is presented in complete form, and the student and physician will find the answers to their problems if they can be answered.

Man and His Health: A Guide to Medical and Public Health Exhibits at the New York World's Fair 1939, Together with Information on the Conservation of Health and the Preservation of Life. Published for the American Museum of Health, Inc. Boards. Price, 50 cents. Pp. 96, with illustrations. New York: Exposition Pub'ns., Inc., 1939.

This is a brief description, with illustrations, of the exhibits in the Hall of Medicine and Public Health at the New York World's Fair. In the Hall of Man is presented a large amount of material on anatomy and physiology from the Oberlander Trust. In the Hall of Medical Science there are twenty-eight exhibits, presented by various scientific and commercial organizations. Brief mention is made of health exhibits found in other parts of the fair, such as the Federal Building and various state and foreign buildings.

A Textbook of Clinical Neurology with an Introduction to the History of Neurology. By Israel S. Wechsler, M.D., Professor of Clinical Neurology, Columbia University, New York. Fourth edition. Cloth. Price, $7. Pp. 844, with 162 illustrations. Philadelphia & London: W. B. Saunders Company, 1939.

This edition contains many additions as well as an introduction to the history of neurology. The latter is a valuable adjunct. Neuritis is regarded as a neuropathy, in a rewritten chapter. The olfactory tests of Elsberg, the carotid sinus syndrome, petrositis, the premotor syndrome and electro-encephalography are included in this edition. There are five parts, on method of examination, the spinal cord, the peripheral nerves, the brain and the neuroses. This book is highly recommended to students and general practitioners.

Pye's Surgical Handicraft: A Manual of Surgical Manipulations, Minor Surgery, and Other Matters Connected with the Work of House Surgeons and of Surgical Dressers. Edited by Hamilton Bailey, F.R.C.S., Surgeon, Royal Northern Hospital, London. Eleventh edition. Cloth. Price, $6. Pp. 512, with 362 illustrations. Baltimore: William Wood & Company, 1939.

The author has brought down to date one of the most complete single volumes on general surgery and has presented it as a guide to house surgeons. Each subject is dealt with in a concise but thorough manner which makes it enjoyable. The chapter on pulmonary complications is especially well presented. Each procedure discussed in a given technic is presented in detail, so that one unfamiliar with the technic can easily follow the steps.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Medical Practice Acts: Indorsement of Licenses of Foreign Licentiates; Board's Right to Require Examination of All Foreign Applicants.—The Education Law of New York authorizes the board of regents to indorse a license issued by a legally constituted board of examiners in any other state or country on satisfactory evidence that the requirements for the issuance of such license were "substantially the equivalent" of the requirements in force in New York when such license was issued and that the applicant has been in the lawful and reputable practice of his profession for a period of not less than five years prior to his making application for such indorsement. When the evidence presented is not satisfyingly sufficient to warrant the indorsement of such license, the board is authorized to require that the candidate for indorsement shall pass such subjects of the licensing examination specified by statute or regents' rule as should be required of the candidate to establish his worthiness to receive such indorsement.

Sept. 21, 1936, the Board of Regents of New York adopted the following rule:

> "That on applications filed after October 15, 1936, no license issued by a legally constituted board of examiners in any foreign country shall be indorsed pursuant to the provisions of Section 51 of the Education Law, unless the applicant shall pass the licensing examination prescribed by law or Regents rule."

The petitioners in these cases had licenses authorizing them to practice medicine in Germany. In 1937 they applied for and passed in the state of New York the examination in English required of foreign applicants. Both then applied for admission to the January 1938 medical licensing examination, one petitioner reserving any rights he might possess under the New York laws regulating the practice of medicine, but both failed to pass the examination. The petitioners then applied to the board of regents for an indorsement of their German licenses, the board denied the request and the petitioners, in a proceeding instituted in the supreme court of New York, special term, Albany County, sought to compel the board to act favorably on their applications. They contended that the board's rule, promulgated in 1936 and requiring examinations of all foreign applicants, was invalid because the law required an examination of a foreign licentiate only when the evidence of his qualifications was not satisfyingly sufficient and that the evidence of their qualification was sufficient to entitle them to an indorsement of their German licenses.

In the opinion of the court, the rule adopted by the board, however well intentioned, directly contravened the statute. The latter authorizes the indorsement of a foreign license on proof of substantially equivalent requirements and a specified period of practice in the foreign country. The rule permits of no such indorsement but requires every foreign applicant to stand examination. In this respect the board transcended its power; it may not legally set a standard more restrictive than the statute. The exhibits submitted by the petitioners, the court thought, gave prima facie force to their contention that their qualifications were sufficient and an order was issued directing the trial of the issue as to whether the petitioners had actually produced evidence satisfyingly sufficient to entitle them to indorsement of their licenses. From this order the board appealed to the supreme court of New York, appellate division, third department.

As viewed by the appellate division, the sole issue to be determined was not whether the board had exceeded its powers in promulgating the rule in question but whether or not the action of the board in denying the petitioners' applications for indorsements of their foreign licenses was arbitrary, unfair, or capricious. The record before the court did not convince it that the board had rejected the petitioners' applications because of the rule adopted in 1936 but because it had appraised the evidence of qualifications submitted by the petitioners and had found it wanting. The obvious purpose of the statute, the court said, was to permit the board to indorse a license issued by the licensing board of another state or country in those cases in which the applicant is unable to meet the letter of the requirements of the New York statute but possesses essentially the same or equivalent qualifications. The power granted to the board is a limited one, remedial in its nature, and must be exercised with caution and with due regard to the statutes regulating the practice of medicine in New York. The board may not through the exercise of the power granted by the law indiscriminately indorse foreign medical licenses. Before it may legally indorse such a license it should be satisfied that the applicant has met substantially all requirements. If it errs at all, it should be on the side of the protection of the public from unworthy and inefficient practitioners.

The burden of proving his qualifications is on the applicant. He must not only prove that he graduated from certain institutions but he must also prove to the satisfaction of the board that these institutions are substantially the equivalent of the New York schools. He must not only prove that he has a foreign license but he must also prove to the satisfaction of the board that the requirements for that license were substantially the same as in New York. The petitioners failed to offer such proof. In the Erlanger petition, it was asserted that he began the study of medicine in 1912 and continued it at various German universities until October 1914. It was alleged that he continued his studies after the war and received his diploma and German medical license in July 1922. In the Levi petition, it was alleged that at the beginning of the World War he had completed sufficient medical courses in German universities to serve as an assistant physician and that he did serve as such in various hospitals until the end of the war and that he received his medical license on June 10, 1919. None of the institutions from which the petitioners graduated, the court pointed out, had ever been registered by the board or by the department of education as maintaining proper medical standards. In neither petition was there any allegation that the German standards at the time the petitioners received their licenses were substantially the same as those existing in the state of New York. There was no proof whatever as to the equality of the German institutions, including faculty, length of courses of study, curriculum or equipment. There was no proof that the petitioners ever passed an examination for their licenses as required in New York. What little evidence there was before the board, in the opinion of the court, indicated that the standard of the German schools was lower than the standards in New York and that the requirements for a German license were far from being essentially the same as those in New York.

The petitioners asserted that many other German physicians had been admitted to practice medicine in New York by the board since 1917 by indorsement of their certificates, but the court thought this point to be without merit. What the board may have done in the past was immaterial; the court was concerned only with its action in the cases before it.

To sustain the contention of the petitioners, the court observed, would mean that any foreigner who can speak our language and who has been licensed to practice in a foreign country and who actually practiced there for a period of five years could, on the moment of his arrival at the port of New York, demand the issuance of a license to him to practice his profession in the state. The legislature never had any such intention. Our own citizens, the court pointed out, must pursue a rigorous course of study and supply evidence of good character in order to practice medicine and yet, if the petitioners were correct, any foreigner who was authorized to practice medicine in his native land could come into the state of New York and be immune from such requirements. There was not the slighest bit of proof before the court to indicate that the action of the board of regents constituted an unlawful and arbitrary exercise of power. The orders of the trial court directing the trial of the issue as to whether the petitioners produced evidence satisfyingly sufficient to come within the statute were therefore reversed.

Petitioner Levi then appealed to the Court of Appeals of New York, which in a memorandum decision affirmed the judgment of the appellate division.—*Levi v. Regents of the University of State of New York et al.; Erlanger v. Same, 8 N. Y. S. (2d) 19; 10 N. Y. S. (2d) 1013; 22 N. E. (2d) 178.*

Narcotic Drug Act (Illinois): Information Must Allege Marihuana Is Cannabis Within Meaning of Statute; Court Will Not Take Judicial Notice of Its Composition.—The defendant was convicted in the municipal court of Chicago on an information charging the unlawful possession of a habit-forming drug; to wit, marihuana. The conviction was upheld by the appellate court for the first district and the defendant thereupon appealed to the Supreme Court of Illinois. In the trial court, in the appellate court and in the Supreme Court the defendant contended that the information under which she was convicted failed to charge any criminal offense.

The narcotic drug act of Illinois, 1935, Ill. Rev. Stat. 1937, Ch. 38, makes it unlawful for any person to possess any narcotic drug except as authorized by the act. It defines the term "narcotic drugs" as including cannabis. The term "cannabis" is defined so as to include "the following substances under whatever names they may be designated: (*a*) The dried flowering or fruiting tops of the pistillate plant Cannabis Sativa L., [Linné] from which the resin has not been extracted, (*b*) the resin extracted from such tops, and (*c*) every compound, manufacture, salt, derivative, mixture, or preparation of such resin, or of such tops from which the resin has not been extracted." The act makes no specific reference to "marihuana." The prosecution claimed, however, that the word "marihuana" is defined in all standard dictionaries as a narcotic drug of the cannabis family, that it is so well known that the court should take judicial notice of its meaning and that marihuana is therefore included in the narcotic drug act of 1935.

It is to be observed, commented the court, that while the word "marihuana" was included in the narcotic drug act of 1931, it is not in the act of 1935 under which this prosecution was brought. The narcotic drugs embraced in the act of 1935 are specifically defined in it. Even if it is conceded that marihuana is Cannabis sativa L., it is obvious that, if the possession of marihuana constitutes an offense under the act, it must be charged that the marihuana alleged to have been unlawfully possessed was from the dried flowering or fruiting tops of the plant named in the act and that the resin had not been extracted. The possession of marihuana is not a criminal offense unless it is of the specific quality and kind defined in the statute. No charge that the marihuana possessed by the defendant in this case was of that specific quality and kind is contained in the information. The information, therefore, did not charge the defendant with any offense known to the law.

The judgment of the courts below were reversed by the Supreme Court and the cause remanded with directions to proceed in accordance with this decision.—*People v. Soard (Ill.), 18 N. E. (2d) 176.*

Dental Practice Acts: Validity of Provisions Authorizing Revocation of License for Advertising.—The New Jersey dental practice act authorizes the revocation of the license of any dentist who advertises in any manner his product or the price or charge to be made or the character or durability of his works or products. On proof that Levine had transgressed the statute in this respect the New Jersey State Board of Registration and Examination in Dentistry revoked his license to practice dentistry. Levine then instituted certiorari proceedings before the supreme court of New Jersey. He contended that the provision of the dental practice act just cited is an improper exercise of the police power of the state and is unconstitutional; that it erects a wall of silence behind which monopoly and high prices could flourish, and that the advertisement that he had published respecting the prices charged by him for dental work and the character and durability of his work was true, and, finally, that the provision referred to interferes with his right of free speech in the conduct of his business.

On the authority of *Semler* v. *Oregon State Board of Dental Examiners*, 294 U. S. 608, 55 S. Ct. 570, 79 L. Ed. 1086, in which the Supreme Court of the United States upheld the constitutionality of a provision of the Oregon dental practice act authorizing the revocation of the license of a dentist for advertising prices for professional services, the supreme court of New Jersey thought that it was clear that the legislature in authorizing the revocation or suspension for this sort of advertising adopted a measure necessary to protect the public from the wiles and artifices of the charlatan. The truth or falsity of the dentist's assertions, said the court, is of no importance. It is possible that everything that a dentist may say in an advertisement is the literal truth, but if this sort of advertising affords the unscrupulous practitioner an opportunity to practice a deception on his patients, then there is reason why the legislature should authorize the suspension or revocation of the licenses of those who so advertise. The issue before the state board in suspending Levine's license on the charges made was simply whether he had resorted to the prohibited practices, and it was not necessary for it to investigate the truth or falsity of his advertisements, since they admittedly offended against the legislative concept of proper dental practice. To urge that an individual licensed by the state to practice a skilled profession may not be precluded by the state from advertising the price to be charged for his work and the durability thereof is tantamount to urging that the state may not make regulations which will preclude charlatans from enticing the public to their offices by arts which are likely to deceive, and that those engaged in practicing a profession requiring skill and knowledge may not be required to conform to a standard of practice which the people by their representatives deem necessary for their protection.

The supreme court, accordingly, in effect, affirmed the order of the board revoking Levine's license.—*Levine v. State Board of Registration and Examination in Dentistry (N. J.), 1 A. (2d) 876.*

Evidence: Admissibility of Expert Testimony Based on Statements Made by Patient to Expert.—On Sept. 24, 1933, the plaintiff jumped from a speeding automobile, fell on a concrete pavement and was knocked unconscious. Twenty-eight days later, on October 22, she was riding as a passenger in the defendant company's street car when it was struck by a train. She sued the defendant company to recover damages for injuries which she claimed she sustained as a result of the street car accident. From a judgment in favor of the plaintiff, the company appealed to the Supreme Court of Missouri, division No. 1.

An expert medical witness for the plaintiff testified that, based on his own examination and on the history of the case as given to him by the plaintiff, the disturbance of function of the plaintiff's bladder which he found at the time of his examination of the plaintiff in June 1934 was due to a spinal concussion which she had received at the time of the street car accident. The witness admitted that, while he had been told by the plaintiff of the prior automobile accident, he had not been informed that after that accident she had remained in a hospital for ten days because of her injuries, that her reflexes were sluggish, that she complained of pain in her abdomen and that she had paralysis of her bladder necessitating catheterization. He stated that from the history which he had obtained from the plaintiff it was his understanding that she had recovered from the injuries she received in the automobile accident and was well when the street car accident occurred.

The testimony of this witness, the Supreme Court held, was not competent evidence and should not have been admitted. It was based on the history of the physical condition of the plaintiff as told to the witness by the plaintiff herself. The plaintiff did not confine her statements to her physical complaints and ailments as of the time of the examination by the witness. She informed him of her alleged recovery from previous injuries which she had sustained, but she did not reveal the physical injuries and complaints she suffered as the result of that accident. A medical expert witness, said the court, may give in evidence his opinion of the condition of a patient based on his examination of the patient or on the patient's statements as to present symptoms or physical condition or on both such examination and statements. He may not, however, base his opinion on the patient's statements as to past physical condition. The admission in evidence by the trial court of the medical expert witness's testimony was reversible error. The judgment of the trial court was reversed and the case remanded for a new trial.—*Berry v. Kansas City Public Service Co. (Mo.), 121 S. W. (2d) 825.*

Workmen's Compensation Acts: Compensability of Cerebral Thrombosis Due to Exertion.—The claimant, Uditsky, while engaged in grinding and beveling glass in the shop of the defendant, Krakovitz, exerted himself to prevent a slipping heavy piece of glass from falling. As he did so he experienced a sensation "like a fire" in his head and over his face and also numbness of his left hand. Thereafter he was unable to work. Later his left hand and the left side of his body became paralyzed. His condition was diagnosed as polycythaemia vera (a condition characterized by an increase in the number of red blood corpuscles) and cerebral thrombosis with hemiplegia. He filed a claim with the workmen's compensation board for compensation under the workmen's compensation act of Pennsylvania. The board denied him compensation for permanent total disability but awarded him compensation for the loss of the use of his left arm. From a judgment of the court of common pleas No. 6, Philadelphia County, affirming the board's award, the defendant appealed to the superior court of Pennsylvania.

The claimant's claim, said the superior court, was supported by the testimony of two physicians that his condition had been caused by the extreme effort he exerted in saving the slipping glass from falling. In the judgment of the court, therefore, the evidence justified the finding of the workmen's compensation board, on which it based its award that the claimant's condition resulted from an accident in the course of his employment. Accordingly, the judgment of the court of common pleas upholding the board's award was affirmed.—*Uditsky v. Krakovitz (Pa.), 2 A. (2d) 525.*

Evidence: Testimony of X-Ray Technician in Interpreting Roentgenograms Admissible.—In a personal injury suit a witness was shown to be in charge of the x-ray and laboratory department of a certain hospital "as an x-ray technician who reads and interprets x-rays for the medical staff of that institution" and to have had fifteen years of experience in reading and interpreting roentgenograms. The trial court then permitted the witness to testify that certain roentgenograms disclosed fractures of the vertebrae of the subject but refused to permit the witness "to express an opinion as to whether the fractures were due to trauma or injury." On an appeal to the Supreme Court of Mississippi, division B, it was contended that the testimony of this witness was not competent because he was not a physician and surgeon and because he had never taken a course in anatomy. The witness, said the Supreme Court, was competent to testify as to what the roentgenograms disclosed because his training and experience should have qualified him so to testify. The fact that a witness is a physician and surgeon would not be the best test of competency in this regard, since it is conceded that many medical practitioners are unable to read and interpret roentgenograms. The experience of an x-ray technician in observing the effect of known fractures, as reflected in the pictures thereof, over a period of years, should peculiarly qualify him to state the facts thereby disclosed, although he would not be competent to express an opinion as to what caused the condition showed.—*Aponaug Mfg. Co. v. Carroll (Miss.), 184 So. 63.*

Medical Practice Acts: Chiropractic as the Practice of Medicine.—A complaint was filed in the city magistrates' court of New York, tenth district, Borough of Brooklyn, charging that Zinke, an unlicensed chiropractor, unlawfully engaged in the practice of medicine and unlawfully used a designation tending to imply or designate himself as a practitioner of medicine. The chiropractor moved for a dismissal of the complaint, contending that it did not charge that he held himself out to be able to diagnose, treat, operate or prescribe for any human disease, pain, injury, deformity or physical condition.

The court found, however, that there was directly and by inference a holding out by the defendant that he was able to perform one or more of the prohibited acts. He displayed certificates bearing his name as a "Doctor of Chiropractic" and signs bearing his name as a "chiropractor." He also caused himself to be listed in the telephone directory as a chiropractor. These signs and certificates, the court pointed out, were presumptive evidence of a holding out within the meaning of the medical practice act. The titles "Doctor" and "chiropractor" carried with them definite implication that the possessor of those titles was able to treat bodily conditions. Furthermore, the setup of the defendant's office, attendant, dressing rooms and split-back robes, neurocalometer and articulated table, constituted equipment of one who uses it as preliminary to and in the actual treatment of physical conditions. When the defendant took the histories of his patients and subsequently treated them and accepted compensation, there arose an inference of a holding out.

Furthermore, the court continued, the defendant diagnosed. His history taking, examination with the use of a neurocalometer and his statements as to the causes of conditions of his patients showed that he made a determination which he deemed sufficient for the purpose of treatment. The term diagnosis, in modern terminology, is a "sizing up" or a comprehending of the physical or mental status of a patient. It is the conclusion itself rather than the procedures on which the conclusion is based which constitutes a diagnosis per se. No particular language need be used and no disease need be mentioned, for the diagnostician may make or draw his conclusion in his own way. The defendant also undertook and offered to treat. The definition of the practice of medicine in New York states that the treatment may be by "any means or method." The defendant's method was by manipulation of the spine.

The court expressed itself as not concerned with whether chiropractic treatments are beneficial or injurious. The only question for determination was whether the facts stated in the complaint showed that the defendant had violated the law. The court was of the opinion that they did and the motion to dismiss the complaint was overruled.—*People v. Zinke (N. Y.), 7 N. Y. S. (2d) 941.*

Life Insurance: Admissibility of Hospital Records in Evidence.—A Pennsylvania statute prohibits physicians from divulging in civil cases communications made to them by their patients which tend to blacken the character of the patient. In an action on a life insurance policy, the superior court of Pennsylvania held that hospital records, showing that the insured had been treated for chronic alcoholism and delirium tremens, were not inadmissible under this statute. The proscription is restricted to "communications" made by the patient to the physician which tend "to blacken his character." It does not extend to information obtained by the physician from his personal examination. In the judgment of the court, the evidence objected to was either not a "communication" made by a patient to his physician or it did not tend to "blacken" the patient's character. —*Soltaniuk v. Metropolitan Life Ins. Co. (Pa.) 2 A. (2d) 501.*

Society Proceedings

COMING MEETINGS

American Academy of Pediatrics, Cincinnati, November 16-18. Dr. Clifford G. Grulee, 636 Church Street, Evanston, Ill., Secretary.
American Society of Anesthetists, Los Angeles, Dec. 14. Dr. Paul M. Wood, 745 Fifth Ave., New York, Secretary.
American Society of Tropical Medicine, Memphis, Tenn., Nov. 21-24. Dr. E. Harold Hinman, Wilson Dam, Ala., Secretary.
Central Association of Obstetricians and Gynecologists, Kansas City, Mo., Nov. 2-4. Dr. W. F. Mengert, University Hospitals, Iowa City, Secretary.
Central Society for Clinical Research, Chicago, Nov. 3-4. Dr. L. D. Thompson, 4932 Maryland Ave., St. Louis, Secretary.
Inter-State Postgraduate Medical Association of North America, Chicago, Oct. 30-Nov. 3. Dr. W. B. Peck, 27 East Stephenson St., Freeport, Ill., Managing Director.
New York State Association of Public Health Laboratories, Albany, Nov. 3. Miss Mary B. Kirkbride, New Scotland Ave., Albany, Secretary.
Pacific Coast Society of Obstetrics and Gynecology, Portland, Ore., Nov. 8-11. Dr. T. Floyd Bell, 400 29th St., Oakland, Calif., Secretary.
Radiological Society of North America, Atlanta, Ga., Dec. 11-15. Dr. Donald S. Childs, 607 Medical Arts Bldg., Syracuse, N. Y., Secretary.
Society for the Study of Asthma and Allied Conditions, Philadelphia, Dec. 9. Dr. W. C. Spain, 116 East 53d St., New York, Secretary.
Southern Medical Association, Memphis, Tenn., Nov. 21-24. Mr. C. P. Loranz, Empire Bldg., Birmingham, Ala., Secretary.
Southern Surgical Association, Augusta, Ga., Dec. 5-7. Dr. E. Alton Ochsner, 1430 Tulane Ave., New Orleans, Secretary.
Southwestern Medical Association, El Paso, Texas, Nov. 9-11. Dr. M. P. Spearman, 1001 First National Bank Bldg., El Paso, Texas, Secretary.
Tri-States Medical Society of Texas, Louisiana and Arkansas, Marshall, Texas, Nov. 8-9. Dr. Robert K. Womack, Longview, Texas, Secretary.
Western Surgical Association, Los Angeles, Dec. 15-16. Dr. Albert H. Montgomery, 122 South Michigan Blvd., Chicago, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1929 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Cancer, New York

36: 527-700 (Aug.) 1939

*Blue Nevus (Jadassohn-Tièche): Its Distinction from Ordinary Moles and Malignant Melanomas. H. Montgomery and J. E. Kahler, Rochester, Minn.—p. 527.

Neoplasm Studies: VI. Granulocytic Accumulation Following In Vivo Roentgen Irradiation of Mouse Sarcoma 180. C. G. Grand, New York.—p. 540.

Observations on Rats Treated with Sex Hormones, Estrin and Testosterone. C. S. McEuen, Montreal.—p. 551.

Pulmonary Asbestosis: V. Report of Bronchial Carcinoma and Epithelial Metaplasia. K. M. Lynch and W. A. Smith, Charleston, S. C.—p. 567.

Early Carcinoma of Ampulla of Vater. J. Foldes and F. W. Heyer, Nanticoke, Pa.—p. 574.

Transferable Liver Neoplasm (C198) Arising in Female Mouse of Leaden Strain. A. M. Cloudman, Bar Harbor, Maine.—p. 578.

Cytology of Tumor Cell in Rous Chicken Sarcoma. M. Levine, New York.—p. 581.

Respiratory Changes in Vitro in Normal and Malignant Tissues Following Irradiation. Anna Goldfeder, New York.—p. 603.

Sterol Metabolism in Tumor Mice. F. L. Breusch, Szeged, Hungary.—p. 609.

Blue Nevus, Moles and Melanomas.—Montgomery and Kahler state that the blue nevus has been confused with the Mongolian spot. The latter is usually a solitary plaque from 2 to 12 cm. in diameter occurring on the back, usually near the sacrum. It may be brown rather than blue. It is seen most frequently in the Mongolian race but also occurs in the Caucasian. The pigmented area is poorly defined; it is not elevated or indurated. It is usually present at birth and, as a rule, disappears within the first few years. Occasionally multiple plaques are seen scattered over the body and solitary Mongolian spots have been described elsewhere than on the back. The cells in the Mongolian spot are histologically nearly identical in appearance with the blue nevus cells but are relatively few in number and occur singly rather than in clumps or in masses. There is no disturbance in the normal architecture of the connective tissue and elastic tissue fibers. The blue nevus occurring in infancy or early childhood also must be differentiated from ordinary pigmented nevi, dermatofibroma with hemorrhage (histiocytoma), small deeply situated hemangioma and finally malignant melanoma. The blue to blue-gray usually distinguishes the blue nevus, on clinical grounds alone, from the ordinary brown to brownish-black pigmented nevus. In typical cases the nevus cells in the two conditions present entirely different morphologic features. Dermatofibroma is occasionally blue, especially when deposits of hemosiderin are to be found histologically. A few chromatophores laden with pigment may be seen, but no elongated fusiform melanoblasts (blue nevus cells) are present. A small deep hemangioma may be blue, but it is soft to palpation and blood is obtained on puncture of the lesion. In a few cases blue nevus may simulate the steel blue color of an early malignant melano-epithelioma in which radiating lines of pigment in the lymphatics have not yet developed. A wide surgical excision is indicated in these cases. The histologic picture is confusing only when the cells of melano-epithelioma elongate into spindle shaped cells frequently containing much pigment. These cells, however, also have an increased amount of cytoplasm and their nuclei are hyperchromatic and frequently contain mitotic figures, three characters which are not seen in blue nevus cells. It is the authors' belief that if blue nevi are looked for they will be found much more frequently than the literature would indicate. Blue nevus rarely shows malignant change. When this occurs it would seem to be that of a relatively slow-growing melanosarcoma. Like ordinary pigmented nevi, the blue nevus usually runs a benign course and there is no need for surgical excision unless for cosmetic purposes or when the lesion is situated in an area exposed to repeated trauma, friction or irritation.

American Journal of Psychiatry, New York

96: 1-254 (July) 1939. Partial Index

*Age of Onset of Epilepsy: Differences Between Deteriorated and Nondeteriorated Patients. H. A. Paskind and M. Brown, Chicago.—p. 59.

*Frequency of Seizures in Epilepsy: Differences Between Deteriorated and Nondeteriorated Patients. H. A. Paskind and M. Brown, Chicago.—p. 65.

Cell Minerals in Amaurotic Idiocy, Tuberculous Sclerosis and Related Conditions, Studied by Micro-Incineration and Spectroscopy: Examples of Degenerative and of Neoplastic Cell Disease. L. Alexander and A. Myerson, Boston.—p. 77.

Psychogenic Factors in Asthma. T. M. French, Chicago.—p. 87.

Cerebral Damage in Hypoglycemia: Review. A. B. Baker, Minneapolis.—p. 109.

Psychiatric Disorders in Fifty School Teachers. J. H. Wall, White Plains, N. Y.—p. 137.

Life Situation Tests as Aids in Psychiatric Prognosis. A. A. Low, H. D. Singer and Catherine L. McCorry, Chicago.—p. 147.

Convulsive States with Evidence of Brain Hemiatrophy. L. Casamajor and R. W. Laidlaw, New York.—p. 165.

Involuntary Eye Movements as Criterion of Depth of Insulin Coma. H. Brill and R. F. Binzley, Brentwood, N. Y.—p. 177.

Anomalies and Dangers in Metrazol Therapy of Schizophrenia. L. E. Geeslin and H. Cleckley, Augusta, Ga.—p. 183.

Metrazol Shock Treatment: Pharmacologic and Biochemical Studies. F. C. Redlich, Independence, Iowa.—p. 193.

Seizures in Deteriorated and Nondeteriorated Epilepsy.—Paskind and Brown report studies on the age of onset of the epilepsy in a group of nondeteriorated, well adjusted, nonpsychotic nonfeebleminded extramural persons with epilepsy. Their material consists of the records of 368 adult nondeteriorated patients with epilepsy. In order to allow sufficient time for deterioration to occur, no patient was accepted for this study unless seizures were present for at least six years. Patients with defective mental development and with focal signs of neurologic disorder were not accepted for this study. A comparison of the age of onset of these nondeteriorated patients with that of institutional, deteriorated patients revealed that: 1. Fewer nondeteriorated patients have the onset before 5 years of age. 2. Fewer nondeteriorated patients have the onset before 10 years of age. 3. More nondeteriorated patients have the onset after 20 years of age. 4. More nondeteriorated patients have the onset after 40 years of age. It is concluded that deteriorated patients with epilepsy differ from the nondeteriorated ones in that there is a tendency to later onset in the nondeteriorated patients. The material which the authors used for the studies on the frequency of seizures consists of the records of 317 adult nondeteriorated extramural patients with epilepsy. No patient was accepted for this study unless he had had seizures for at least six years. Patients with defective mental development and with focal signs of neurologic disorder were not accepted for this study. The seizures studied were of patients who had had no treatment or only inadequate, irregular treatment. Comparing the frequency of major seizures in their series of nondeteriorated patients with the frequency of such seizures in deteriorated institutional patients, the authors say that in their series 5.7 per cent had grand mal seizures at intervals of less than a day. This ratio is much smaller than that given in other reports, in which comparative figures vary between 10.9 and 20.4 per cent. In 14.5 per cent of the present series of patients, major seizures occurred at intervals of a week or less. This figure again contrasts markedly with other reports in which the comparative figures vary between 18.3 and 56 per cent. In 52.1 per cent of the patients of the present series grand mal seizures occurred at intervals of one month or less. Comparative figures in other statistics are between 54.7 and 90.3 per cent. The percentage of patients in whom the major seizures occurred at intervals of greater than one month was 47.9 in the material investigated. This figure is greater than that given by any other writer. Thus it appears that extramural, nondeteriorated patients have major seizures less frequently than do the deteriorated patients in institutions. A search of the literature revealed only one statistical statement regarding the frequency of petit mal attacks; Gowers stated that in half the cases the attacks occurred daily. In the material analyzed by the authors the frequency of petit mal attacks could

be determined in 137 cases. They occurred at intervals not exceeding one day in 21.2 per cent of cases. In the conclusion the authors emphasize once more that in noninstitutional, nondeteriorated patients with epilepsy, seizures are significantly less frequent than they are in deteriorated institutional patients.

Annals of Internal Medicine, Lancaster, Pa.

13: 225-384 (Aug.) 1939

Nicotinic Acid in Nutrition. C. A. Elvehjem, Madison, Wis.—p. 225.
Observations on Experimental Use of Sulfapyridine: I. Relation of Strain Resistance to Chemotherapeutic Effects of Sulfapyridine in Experimental Pneumococcic Infections in Mice. P. H. Long and Eleanor A. Bliss, Baltimore.—p. 232.
Epidemic Syphilis, Its Recognition and Management by the Physician. E. G. Clark, Nashville, Tenn.—p. 238.
Anaphylaxis and Allergy. C. A. Dragstedt, Chicago.—p. 248.
Value and Significance of Tuberculin Test. A. J. Logie, Jacksonville, Fla.—p. 255.
*Relative Value of Basal Metabolic Rate, Velocity of Blood Flow and Creatine Tolerance Test in Differential Diagnosis of Graves' Disease and Allied Conditions. F. H. King and A. R. Sohval, New York.—p. 261.
Electrocardiographic Findings Following Carotid Sinus Stimulation. W. K. Purks, Vicksburg, Miss.—p. 270.
Subacute Bacterial Endocarditis Due to Streptococcus Viridans, with Special Reference to Prognosis. J. A. Capps, Chicago.—p. 280.
*Role of Upper Small Intestine in Control of Gastric Secretion: Effect of Neutral Fat, Fatty Acid and Soaps; Phase of Gastric Secretion Influenced and Relative Importance of Psychic and Chemical Phases. H. Shay, J. Gershon-Cohen and S. S. Fels, Philadelphia.—p. 294.
*Observations on Specific Treatment (Type A Antiserum) of Staphylococcic Septicemia. L. A. Julianelle, St. Louis.—p. 308.
Benign and Malignant Gastric Ulcers: Their Relation and Clinical Differentiation. W. L. Palmer, Chicago.—p. 317.
Postgraduate Portion of Medical Education. C. S. Burwell, Boston.—p. 339.

Differential Diagnosis of Exophthalmic Goiter.—King and Sohval say that whereas typical cases of exophthalmic goiter present no difficulty in the diagnosis, borderline cases, in which the symptomatology is not so clearly delineated, are not so easy to differentiate on clinical grounds. Efforts have been made by previous workers to find some objective laboratory tests which would simplify the differentiation of such conditions as autonomic imbalance, the menopause, hypertension and nontoxic goiter from true exophthalmic goiter. In this study King and Sohval investigated the comparative value of the determination of the basal metabolic rate, the creatine tolerance and the velocity of the blood flow. These tests were made in a group of eighty-seven cases comprising seventeen of exophthalmic goiter and seventy of borderline and allied disorders. Regarding their experience with the determination of the basal metabolic rate, the authors say that the basal metabolic rate is uniformly elevated in exophthalmic goiter and is reduced by the administration of iodine and by subtotal thyroidectomy. In the borderline and allied cases, initial determinations are frequently elevated and misleading. At times repeated determinations are necessary before the true basal rate is obtained. Especially does this hold in cases of autonomic imbalance. In some instances the authors succeeded in obtaining an accurate (normal) figure only after hospitalization. An elevated figure obtained in a random determination of the basal metabolism of an ambulatory patient is wholly unreliable. The determination of the velocity of blood flow as measured by the saccharin method in terms of arm to tongue circulation time has not been used as an adjuvant in the clinical diagnosis of exophthalmic goiter. Since, according to investigations, the velocity of the blood flow is roughly in direct proportion to the basal metabolic rate, the authors decided to determine it in their cases. They measured the circulation time by the interval elapsing between the injection of saccharin into the antecubital vein and the perception of the sweet taste in the tongue. One hundred and sixty-seven determinations were made in eighty-eight cases. The authors found that the determination of the circulation time fails to afford a laboratory aid in the differential diagnosis between exophthalmic goiter and the borderline cases, since the differences are not clearcut enough and there is considerable overlapping of figures. Their experience with the creatine tolerance test discloses that it is also limited in its usefulness and may give discordant results. Laboratory aids in general are inadequate as absolute criteria in the differential diagnosis between exophthalmic goiter and the borderline cases which simulate it. However, the determination of the basal metabolic rate excels the circulation time test and the creatine tolerance test in usefulness. In the last analysis, clinical judgment surpasses in value any of these laboratory aids. The latter should assume a secondary role and be employed with distinct knowledge of their limitations and shortcomings.

Upper Small Intestine and Gastric Secretion.—Shay and his associates studied the effect on gastric secretion of neutral fat, fatty acid and soap in the upper intestine, the phase of secretion influenced from the intestine and the relative importance of the psychic and chemical phases of gastric secretion. They selected eight patients with a normal or high gastric acid response to the Ewald meal and with no demonstrable organic gastrointestinal disease. In order to satisfy any questions that might be raised regarding the chemical effect of zwieback and water as the test meal, numerous studies were done with 200 cc. of 2 per cent Liebig's extract as the gastric meal. The change in gastric secretion produced by duodenal stimulation was independent of the type of mouth meal used. After an overnight fast two Rehfuss tubes were introduced into the stomach. One was passed into the duodenum by the usual technic, whereas the other remained in the stomach. When the duodenum was intubated, the positions of the tubes were determined fluoroscopically. The fasting gastric contents were removed and the test meal was administered by mouth. The Ewald meal consisted of 30 Gm. of zwieback and 300 cc. of distilled water at body temperature. Duodenal instillation of the test substances in the separate studies was begun with the mouth meal, except when the effect of a time lapse in their administration was being studied. The effect on gastric secretion of the additional tube through the pylorus was investigated. As previously reported, a tube so placed did not influence gastric emptying; under similar conditions it failed to modify gastric secretion. The studies reported by the authors demonstrated consistent marked depressions of gastric secretion in man when neutral fats, fatty acids and soaps in proper concentrations were instilled into the duodenum simultaneously with the mouth meal. All secretory fractions were involved: acid, chloride and enzymes. This depression of secretion continued for a considerable period after the instillation of the stimulant was stopped. A secondary sharp rise in gastric secretion was nearly always observed after the duodenal stimulating effect was overcome. The authors were unable to confirm the opinion that this secondary rise in secretion is dependent on the formation of soaps in the upper intestine, the action of which is supposed to cause stimulation of gastric secretion. The duodenal instillation of a soap, such as sodium oleate, in proper concentration (15 per cent) produced, just as oil, first depression and then rise in secretion. The authors frequently saw a sharp rise of gastric secretion after the depression stage from agents other than fats. The result obtained with 40 per cent dextrose, used to illustrate the action of agents other than fat or fat derivatives, represents the most striking secondary rise of secretion. Obviously, soap formation is not involved here. By the use of duodenal instillates of different concentrations (2 and 15 per cent sodium oleate) the authors obtained a difference between the thresholds of response of the gastric motor and secretory mechanisms. The motor mechanism appears to have a lower threshold than the secretory. The mechanism of enzyme secretion also appears to be influenced differently from the acid mechanism. This is seen in the almost consistent earlier rise in enzyme concentration after the duodenal stimulant is stopped. The question was raised whether the secondary rise in the gastric secretion, following the secretory depression from the duodenal instillation of oil, might not represent a discharge of secretion stored up during the depression period. The authors believe that the duodenal influence is exerted chiefly, if not entirely, on the psychic phase of gastric secretion and, further, that this phase represents the important one. This is based on the prevention of the stimulation of gastric secretion during insulin hypoglycemia and on the failure of duodenal stimulation to prevent a rise in gastric secretion following histamine injection.

Specific Treatment of Staphylococcic Septicemia.—Julianelle says that the differentiation of staphylococci into types A and B was established primarily by immunologic and chemical differences between the intracellular polysaccharides extracted from the respective organisms and secondarily by the biologic distinction that type A strains are derived from pathogenic conditions while type B strains are apparently saprophytic. Later

the determination of types was simplified by the mannite fermentation test, which separates type A from type B by the ability of the former to metabolize acid from this sugar. Cutaneous tests indicated that, while the polysaccharide of type B is cutaneously inert, the similar preparation from type A elicits reactions in approximately 12 per cent of normal infants and children and 70 per cent of normal adults. An additional observation of greater importance was that, irrespective of skin reactivity, precipitins for the specific carbohydrate were demonstrable in the serums of only those patients suffering from severe, prolonged, generalized infection and, indeed, only in those eventually recovering from the infection, so that the appearance of precipitating antibodies in the serums of patients has been accepted as a sign of favorable prognosis. Reflecting on the significance of the presence of precipitins only in the serums of patients recovering from critical infection, it was proposed to treat patients who had staphylococcic septicemia with antiserum containing a high titer of the precipitins capable of reacting with the specific carbohydrates. All the antiserums used in this study were prepared from rabbits but it is probable that the antiserums from other animals may be equally effective. After describing the preparation and administration of antiserums, the author describes his clinical observations. Seventeen patients suffering with staphylococcic septicemia secondary to a primary lesion yielded on culture staphylococci belonging to type A and capable of fermenting mannite. All the patients were treated with type A antiserum prepared in rabbits and were given in addition whatever supplementary measures were indicated; such as surgical drainage and blood transfusions. The untoward reactions ascribable to the serum were mild, and in four cases the treatment was followed by serum sickness. The cutaneous reaction to the carbohydrate of type A is suggested as an index of sufficient treatment. Of the seventeen patients treated with type A antiserum, seven recovered and ten died. Of the ten patients dying, four died before the end of the first day of treatment, four had developed sterile blood cultures (and of these, three died of other causes) and two died with typical signs of staphylococcic infection. Exclusive of the four patients who succumbed within the first day, type A antiserum apparently sterilized the blood in eleven of thirteen cases.

Archives of Internal Medicine, Chicago

64: 409-660 (Sept.) 1939

Range of Normal Blood Pressure: Statistical and Clinical Study of 11,383 Persons. S. C. Robinson and M. Brucer, Chicago.—p. 409.
Bilirubin and Urobilin Content of Bile Obtained by Duodenal Drainage: Normal Values and Values for Patients with Cholecystitis. M. Royer, Buenos Aires, Argentina.—p. 445.
*"Cardiac Cirrhosis" of Liver: Clinical and Pathologic Study. H. M. Katzin, J. V. Waller and H. L. Blumgart, Boston.—p. 457.
Hematology of Sternal Marrow and Venous Blood of Pregnant and of Nonpregnant Women. H. H. Pitts and Evelyn A. Packham, Vancouver, B. C.—p. 471.
*Phosphatase Activity in Chronic Arthritis. C. L. Steinberg and Louise Catherine Suter, Rochester, N. Y.—p. 483.
Electrocardiographic Findings in Cases of Ventricular Aneurysm. M. Eliaser Jr. and J. Konigsberg, San Francisco.—p. 493.
Effects on Cardiovascular System of Man of Fluids Administered Intravenously: III. Studies of Glomerular Filtration Rate as Measured by Urea Clearance. D. R. Gilligan, M. D. Altschule and A. J. Linenthal, Boston.—p. 505.
Experimental Renal Insufficiency Produced by Partial Nephrectomy: XI. Diets Containing Dried Extracted Liver. A. Chanutin and S. Ludewig, University, Va.—p. 513.
Id.: XII. Diets Containing Dried Extracted Meat. A. Chanutin and S. Ludewig, University, Va.—p. 526.
*Intracerebral Carcinomatous Metastases. C. C. Hare and G. A. Schwarz, New York.—p. 542.
Primary Carcinoma of Liver: Tumor Thrombosis of Inferior Vena Cava and Right Auricle. R. Gregory, Washington, D. C.—p. 566.
Thiocyanate Dermatitis: Report of Case. M. E. Green and J. S. Snow, Ann Arbor, Mich.—p. 579.
Lipoid Pneumonia: Report of Two Cases. C. F. Garvin, Cleveland.—p. 586.
Vascular Diseases: Review of Some of Recent Literature, with Critical Review of Surgical Treatment. G. W. Scupham, G. de Takáts, T. R. Van Dellen and W. C. Beck, Chicago.—p. 590.

"Cardiac Cirrhosis" of Liver.—In examining 2,000 consecutive necropsy protocols, Katzin and his collaborators found that 286 of the deaths were due to congestive cardiac failure. Increased hepatic fibrous tissue was found in one third of these cases and this was approximately three times the incidence found in the remaining 1,714 cases in which congestive failure was absent. The incidence of fibrosis in cases of chronic passive congestion increased with the duration of congestive failure, and the more severe grades were found in cases in which the illness was of longest duration. The causal significance of chronic passive congestion in the production of hepatic fibrosis was emphasized by the increasing incidence and severity of the fibrosis with increasing duration of congestive cardiac failure. The only type of increase of fibrous tissue peculiar to this group of cases of cardiac decompensation was central fibrosis, for, with a single exception, no instance of central fibrosis was found among the 1,714 cases in which necropsy failed to disclose congestive failure. Portal fibrosis also was found in a larger percentage of such cases than in cases in which chronic passive congestion was absent. This suggests that chronic passive congestion with resulting anoxemia, by increasing the susceptibility of the hepatic tissue, is also a contributing factor to fibrosis in the portal areas.

Phosphatase Activity in Chronic Arthritis.—Steinberg and Suter determined the phosphatase content of the serum of forty-four patients with atrophic arthritis, eight with hypertrophic arthritis, five with mixed atrophic and hypertrophic arthritis, five with osteitis deformans and six healthy persons. In the only case of arthritis in which the value for serum phosphatase was above 4.2 units it was later proved that malignant tumor of the prostate gland was present, with secondary involvement of osseous and pulmonary tissue. An increase of serum phosphatase in this type of malignant disease has been described by Gutman and his co-workers. Determination of the phosphatase content of the serum in cases of chronic atrophic and hypertrophic arthritis is therefore important in the differential diagnosis. A normal value for serum phosphatase is characteristic of chronic atrophic or hypertrophic arthritis; an abnormal value suggests the possibility of a complicating condition or an erroneous diagnosis of this condition. Determinations of the phosphatase content of the serum should be made a routine procedure in the study of diseases of the bones and joints.

Intracerebral Carcinomatous Metastases.—Hare and Schwarz describe the clinical features of 100 cases of intracerebral carcinomatous metastases and the pathologic features in thirty-four of these cases in which necropsy was performed. The study is limited to cases in which the tumor has spread, presumably by way of the blood stream, to involve the parenchyma of the brain. The authors' conclusions are that: 1. Bronchogenic and mammary carcinoma commonly metastasize to the brain. 2. The primary carcinoma in cases of cerebral metastasis is most commonly in the lung or breast; sixty-five of the 100 primary tumors were so located. 3. A bronchogenic carcinoma often manifests its effects by cerebral metastasis before there are any pulmonary signs. 4. Carcinoma with cerebral metastases is not uncommon in persons less than 40 years of age. This occurred in twenty-seven of the 100 cases. 5. The disease occurs predominantly in male patients in the ratio of 3.2:1, provided the cases of primary carcinoma of the breast are excluded. 6. Symptoms of metastasis are usually of short duration before the patient becomes seriously ill. 7. The onset of intracranial symptoms occurred suddenly in thirty-six cases. 8. Patients with metastatic cerebral tumor do not tolerate surgical procedures well. The average duration of life from the time of the first neurologic symptom until death was 3.6 months for the thirty-two persons who died while under the authors' care. The survival period was much shorter for those who were operated on. 9. Mental alterations of varying degree were present in 50 per cent of the patients studied. 10. Severe headache may be a prominent symptom. It may or may not be associated with papilledema. 11. Signs of chronic debilitating disease may be absent. They were lacking in 40 per cent of the cases. 12. Abnormality of the spinal fluid occurred in 70 per cent of the cases in which it was examined. 13. X-ray evidence of erosion of the sella turcica may be present. It was not uncommon in spite of the short duration of the cerebral metastases. 14. Encephalographic and clinical studies may localize one of the metastatic masses, which is usually the largest, and may fail to show the presence of other, smaller, nodules. 15. Even after metastasizing to the brain, bronchogenic carcinoma may not appear as such on roentgenograms of the chest. 16. Metastatic cerebral tumors may be single or multiple. Multiple tumors were observed in twenty brains removed at necropsy. 17. In practically all cases of cerebral metastasis there are metastases to other organs. 18. Cerebral disease in addition to the metastases may be present. Such was the case in four of the

present series: cholesteatoma in one and syphilis of the central nervous system in three. 19. Surgical removal of single metastases in a few cases may prolong life for months or even for several years; however, such cases form a small percentage, as most patients die shortly after craniotomy. 20. Subtemporal decompression often relieves the headache and affords great comfort to the patient. 21. When craniotomy is to be performed, x-ray studies of the chest should be made, regardless of the age of the patient.

Archives of Otolaryngology, Chicago

30: 319-496 (Sept.) 1939

*Atrophic Rhinitis: Treatment with Estrogenic Substances, with Biopsy Before and After Treatment. W. W. Eagle, R. D. Baker and E. C. Hamblen, Durham, N. C.—p. 319.
Nasograph Mirror of Glatzel as Measure of Nasal Patency. C. C. Lieb and M. G. Mulinos, New York.—p. 334.
Motion Pictures of Human Larynx. W. A. Lell, with technical assistance of W. J. Sullivan, Philadelphia.—p. 344.
Congenital Tracheo-Esophageal Fistula Without Atresia of Esophagus: Report of Case with Plastic Closure and Cure. C. J. Imperatori, New York.—p. 352.
Neurologic Complications of Infections of Temporal Bone and Paranasal Sinuses: Summary of Twenty Years' (1919 to 1938) Experience. J. C. Yaskin, Philadelphia.—p. 360.
*Larynx in Infantile Beriberi. V. C. Alcantara and G. deOcampo, Manila, Philippine Islands.—p. 389.
Oro-Antral Openings and Their Surgical Correction. A. Berger, New York.—p. 400.
*Constitutional Background of Infection of Upper Part of Respiratory Tract. J. B. Price, Norristown, Pa.—p. 411.
Larynx of the Tuberculous Child. H. Rubin and S. Galburt, Brooklyn.—p. 421.
Paranasal Sinuses. S. Salinger, Chicago.—p. 442.

Atrophic Rhinitis.—Eagle and his associates used estrogens in the treatment of fourteen patients with atrophic rhinitis. Sections of their nasal mucosa were studied before and during or after treatment with regard to specific histologic alterations attributable to the local action of the estrogens. The first biopsy specimen in each case was obtained previous to any treatment and the second one was taken from twenty-seven to 216 days after the first treatments with estrogenic substances were started. No patient complained specifically of deafness and tinnitus. Twenty-two patients started the estrogenic treatment and had the original biopsy but, owing to economic reasons and the distance to the clinic, eight did not return for the second biopsy. The patients irrigated their noses twice daily with physiologic solution of sodium chloride or 1:10,000 solution of potassium permanganate and ten minutes later repeated the irrigation to remove the crusts that had been loosened by the earlier washing. Then 0.5 cc. of estrogenic substance was sprayed into the nose twice daily, giving each patient the equivalent of 1 cc., or 1,000 international units, of estrogen daily. Twenty-one of the twenty-two patients reported clinical benefit and each wished to continue treatment. The patient with stormy menopausal symptoms stated that she was not improved to the slightest degree. Inspection of the nose revealed certain marked diminution or complete eradication of crusts in all fourteen cases in which the study was completed, and in no instance was the odor characteristic of the disease detectable. The only changes noticeable in the mucosa were a slight increase in hyperemia and a smoother surface. Patients complaining of a burning sensation in the scalp and occipital headache were relieved of these symptoms. The authors are unable to state whether the patients' noses were free of crusts because of the more frequent irrigations or because of the estrogenic therapy. The impression was that the surface epithelium and the subepithelial glandular system contained more mucous cells after treatment than before. It appeared that the amounts of squamous and ciliated epithelium and the vascularity, as well as various other features, were not altered. No perfectly consistent change in any one direction existed. Fibrosis was recorded more frequently before than after treatment. The protocol method of analysis suggested increased function of the mucous glands, and the statistical method decreased density of the tunica proper after treatment. It is possible that study of a far larger series of patients might give significance to some of these suggestions. The present observations indicate the absence of obvious morphologic changes.

Larynx in Infantile Beriberi.—Alcantara and deOcampo examined the larynxes of thirty-seven infants from 1 to 9 months of age with infantile beriberi. In eleven the disease was complicated by acute infection of the respiratory tract. Hoarseness and weakness of the voice, or aphonia, was the most frequent symptom. The final diagnosis of infantile beriberi was given in all these cases by the pediatrician. The laryngeal lesions found were as follows: The five patients with acute cardialgic beriberi, in whom the impairment of voice was slight, showed only slight congestion of the vocal cords, their motility being normal. In the rest, impairment of motion of the vocal cords existed. The right vocal cord was paretic or could not move completely to the median line in four cases, stayed immobile in the middle in nine and assumed a cadaveric position in three. The left vocal cord was paretic in five cases, completely immobile in the median line in nine and cadaveric in one. The vocal cords were bilaterally affected in three cases. In some cases the paretic vocal cord appeared at a lower level than the normal. Twenty-two of a control group of thirty-one children with diseases other than infantile beriberi but with hoarseness as a complaint also, examined laryngoscopically, showed only congestion of the vocal cords, which moved normally. The rest had impairment of movement of the vocal cord, but in almost all of them there was a coexistent pathologic condition which might explain the paresis. In the rare cases in which the impairment of motion seemed to be entirely attributable to the inflammatory congestion of the larynx, the hoarseness and the impaired mobility were of short duration in contrast to their long duration in the cases of beriberi. The authors believe that impaired mobility of the vocal cords should be added to the already recognized diagnostic factors of infantile beriberi. In cases in which beriberi and acute infection of the respiratory tract coexist, the motility of the cords is of help in determining whether both are present and what degree of deficiency of vitamin B_1 exists in the child. Irritation and then degeneration of the abductor fibers of the vagus nerve followed by similar changes in the other fibers, the tensors and adductors appear to be the clinical facts in the production of the laryngeal lesions. Cardiac enlargement does not seem to have any influence on the degeneration. Clinically and probably pathologically, at least with regard to the laryngeal lesions, there is a close similarity between adult and infantile beriberi.

Constitutional Background of Respiratory Infection.—Price studied the influence of constitutional factors in infections of the upper part of the respiratory tract by examining two groups of subjects. One of these groups was selected from 754 male and female students at Ursinus College and was composed of young men and women who came from good, solid, substantial, middle class families, representing the average, normal type. The other group was a cross section of the male and female inmates of Pennhurst State School, degenerative types. Members of both these groups live in the same vicinity, the institutions being within 10 miles of each other. Subjects of the degenerative type are more affected by the constitutional factors in their basic background than are those of the other type, who are slightly affected. The difference in the incidence of infection of the upper part of the respiratory tract in the two groups strikingly indicates the variation of the constitutional factor. In an analysis of this factor, the vasomotor reactions in the two groups were compared by studying the dermographic response. The dermographic reaction was more definite in the degenerative group. It is pointed out that abnormal vasomotor reactions may be an important element in the mechanism of infection of the upper part of the respiratory tract. Unless the constitutional factors in the case can be changed definitely, treatment will accomplish but little. Physiologic equilibrium should be the goal. If the autonomic system, the endocrine system or the acid-base metabolism is at fault, one must diagnose the condition and attempt to regulate it physiologically.

Canadian Public Health Journal, Toronto

30: 419-468 (Sept.) 1939

Present Situation Regarding the Adequacy of Medical Care in Canada. G. Fleming, Montreal.—p. 419.
What Can the University Contribute to Public Health Education? R. Fraser, Sackville, N. B.—p. 424.
Nutrition in Canada. E. W. McHenry, Toronto.—p. 431.
Study of 456 Deaths in Ontario Attributed to Diabetes. R. D. Defries, Mary A. Ross and A. H. Sellers, Toronto.—p. 435.
The British Columbia Peace River Health Unit. J. M. Hershey, Pouce Coupe, B. C.—p. 445.
Campaign Against Ragweed. H. B. Anderson, Toronto.—p. 451.

Delaware State Medical Journal, Wilmington

11: 171-190 (Aug.) 1939

Ten Year Comparison of Sanatorium Patients. L. D. Phillips, Marshallton.—p. 171.
*Incidence of Syphilis in Delaware. J. R. Beck, Dover.—p. 172.
Classification of Cases Admitted to the State Board of Health Venereal Disease Clinics. T. E. Hynson, Dover.—p. 174.
Epidemiologic Control of Syphilis in Delaware. L. L. Fitchett, Felton.—p. 176.
Infant Mortality in Delaware. F. I. Hudson, Dover.—p. 179.
Approval of Laboratories Making Serologic Tests for Syphilis. R. D. Herdman, Dover.—p. 181.
Another Step Forward in Public Health. R. C. Beckett, Dover.—p. 182.
Why Care for the Deciduous Teeth? Margaret H. Jeffreys, Dover.—p. 184.
Place of Nutrition in a Health Program. Charlotte Spencer, Dover.—p. 185.

Incidence of Syphilis in Delaware.—Beck states that 868, or 94.5 per cent, of the students at the University of Delaware were given Kahn and Wassermann tests and only one positive blood reaction was obtained. Other groups (domestics, food handlers, nursery school children and industrial school girls) were also tested and the proportion of positive reactors ranged from 0 to 4.5 per cent in the white persons and from 4.8 to 47.2 per cent in the Negroes. From the figures presented, it is estimated that less than 2 per cent of the white and about 30 per cent of the Negro population of Delaware have syphilis.

Indiana State Medical Assn. Journal, Indianapolis

32: 445-556 (Sept.) 1939

*Chronic Rheumatic Brain Disease as Factor in Causation of Mental Illness: Report of Two Cases. W. L. Bruetsch and M. A. Bahr, Indianapolis.—p. 445.
Present Status of Shock Therapy in Treatment of Dementia Praecox. P. B. Reed, Indianapolis.—p. 451.
Metrazol in Schizophrenia. E. R. Smith, Indianapolis.—p. 456.
Results of Insulin Shock Therapy in Ten Cases. H. A. Stellner and H. L. Watson, Evansville.—p. 459.
Sinusitis Diagnosis and Nonoperative Treatment. W. F. Gessler, Fort Wayne.—p. 463.
Surgical Treatment of Sinusitis. R. J. McQuiston, Indianapolis.—p. 466.
Early Diagnosis and Prevention of Deformity in Crippling Diseases of Childhood. A. R. Shands Jr., Wilmington, Del.—p. 471.
Theoretical Considerations of Clinical Electrochemical and Electrophysical Phenomena. W. L. Green, Columbus.—p. 474.

Chronic Rheumatic Infection and Mental Illness.—Chronic rheumatic infection might be the etiologic factor in certain cases of long standing mental illness. In the necropsy service of the Central State Hospital of Indianapolis, Bruetsch and Bahr observed that, in some subjects with old rheumatic changes on the heart valves, gross lesions in the form of small or large infarctions were present in the brain and at times in other organs. In most of these instances the clinical record did not give reference to a previous rheumatic infection, and none of the patients had gone through an acute attack of rheumatic fever while an inmate of the institution. Particular attention was given to the presence of rheumatic valvular heart disease in the necropsies of 500 mental patients. Other forms of endocarditis, such as the subacute bacterial form, were ruled out by gross and microscopic examination. The anatomic investigation disclosed chronic rheumatic valvular disease to be present in 4 per cent. Microscopic examination of all the organs of these patients showed that the long-continued rheumatic infection had involved not only the heart but also the brain and other organs, such as the kidneys, spleen and pancreas. The changes in the brain consisted of an obliterating rheumatic endarteritis of small and larger vessels having resulted in gross and microscopic infarctions and in numerous minute areas of incomplete softening (acellular areas). Small connective tissue scars originating from proliferating vessels and extending over several cortical cell layers were frequently observed. Glial nodules were occasionally seen in the cortex and in the white matter. Two patients with a psychosis of short duration had a rheumatic encephalitis. Some of the cases were diagnosed as dementia praecox, others as manic depression or as involutional and senile psychoses. In two cases the diagnosis was psychosis with cerebral arteriosclerosis, because residual signs of a "stroke" were present. If the rheumatic infection produces brain lesions in childhood, mental deficiency may result.

Journal of Urology, Baltimore

42: 269-480 (Sept.) 1939. Partial Index

Adenocarcinoma of Kidney with Metastasis to Lung: Cured by Nephrectomy and Lobectomy. J. D. Barney and E. J. Churchill, Boston.—p. 269.
Parenchymal Calculosis of Kidneys. M. Muschat and L. Koolpe, Philadelphia.—p. 293.
Migration of Renal Stones Associated with Pyonephrosis and Perinephric Abscess into Lung. M. A. Granoff, Gloversville, N. Y.—p. 302.
Unilateral Renal Agenesis with Associated Genital Anomalies. D. H. Drummond and H. D. Palmer, Rockford, Ill.—p. 317.
Carbuncle of Kidney: Report of Ten Cases. G. A. Ingrish, Chicago.—p. 326.
Asymptomatic Hydronephrosis Resulting from Papilloma of Ureter. Elizabeth M. Ramsey, Washington.—p. 341.
*Hormone Control of Prostate and Its Relation to Clinical Prostatic Hypertrophy: Survey of Literature. B. Vidgoff, Portland, Ore.—p. 359.
Estrogenic Property of Testosterone Propionate: Allen-Doisy Test as Questionable Indicator of "Female" Hormone in Urine of Men. J. F. McCahey and A. E. Rakoff, Philadelphia.—p. 372.

Endocrine Control of Prostate.—Vidgoff points out that an endocrine relationship is implied because man's sexual activity is supposedly waning when prostatic hypertrophy becomes troublesome. The accidental finding of epithelial metaplasia in the prostate of animals after the injection of theelin has led to the theory of estrogenic dominance in a bisexual organ as the explanation of the clinical picture. The author is not convinced that this is a specific observation because it is well known that estrogenic substance is a general epithelial stimulant. Furthermore, the anatomic evidence does not support this theory. The many reports of remarkable relief from the clinical picture with testosterone are not convincing. In animals, testosterone causes a hypertrophy of the prostate. The clinical experimental work has been insufficiently controlled. The beneficial effects obtained by the use of the testosterone in prostatic hypertrophy is probably due to the effect on the congestion surrounding the adenoma. For the same reason, prostatic hypertrophy in the human being is capable of undergoing spontaneous amelioration. There is evidence to show that the testis elaborates a substance which has an inhibitory effect on the prostate. This inhibitory substance has not been isolated as yet, but work going on at present shows promising results. Much experimental work on the problem, rigidly controlled, is necessary.

Laryngoscope, St. Louis

49: 603-738 (Aug.) 1939

Rhinology in Children: Résumé of and Comments on Literature for 1938. D. E. S. Wishart, Toronto.—p. 603.
Modern Views Regarding Anatomy and Physiology of Vestibular Tracts. O. Marburg, New York.—p. 631.
Immunologic Aspects of Blood Invasions, with Special Reference to Sinus Thrombosis. G. Shwartzman, New York.—p. 653.
Use of Monochord in Routine Tests of Hearing. F. T. Hill, Waterville, Maine.—p. 666.
Skull Fractures Involving the Ear: Clinical Study of 211 Cases. W. E. Grove, Milwaukee.—p. 678.
Thyratron Inflector, Its Behavior with Certain Vowels and Its Use in Instructing Deaf Children. T. A. Sterne and H. J. Zimmerman, St. Louis.—p. 708.

Nebraska State Medical Journal, Lincoln

24: 281-320 (Aug.) 1939

Inoperable Sarcoma of Bone: Cures After More Than Five Years. J. P. Lord, Omaha.—p. 281.
Reduction of Colles Fracture. H. R. Miner, Falls City.—p. 286.
Orthopedic Care of the Arthritic Patient. H. F. Johnson and G. Whiston, Omaha.—p. 289.
Skin Diseases Commonly Encountered During the Summer. O. J. Cameron, Omaha.—p. 294.
Use of Bee Venom in Treatment of Arthritis and Neuritis. G. W. Ainlay, Fairbury.—p. 298.
Surgical Aspects of Acute Abdomen in Infancy and Childhood. C. W. McLaughlin Jr. and H. H. Davis, Omaha.—p. 304.
Review of Hypertension: Case Report. E. J. Kirk, Omaha.—p. 308.

New England Journal of Medicine, Boston

221: 329-366 (Aug. 31) 1939

*Studies on Heredity in Jewish Diabetic Patients. A. Rudy and C. E. Keeler, Boston.—p. 329.
Surgery of Extrahepatic Biliary Tract. C. K. P. Henry, Montreal.—p. 333.
*Complete Heart Block Resulting from Overdosage with Thyroid Extract. M. Aisner and J. F. Dorsey, Boston.—p. 336.
Bacteriology. C. A. Janeway, Boston.—p. 339.

Heredity in Jewish Diabetic Patients.—Rudy and Keeler collected data on the importance of heredity as an etiologic factor in diabetes mellitus in the families of 1,037 Jewish patients. Among 1,000 successive nondiabetic patients admitted to the

Beth Israel Hospital, sixty-three reported one or more members of their families as having had diabetes. The disease was at least four times as frequent in the families of the 1,037 diabetic subjects. According to Cammidge it is even more than eleven times as frequent. From the data of their hospital records the authors found 29.1 per cent with one or more diabetic individuals in their families. Interviews with 246 Jewish diabetic patients revealed a higher proportion of positive family histories, eighty-seven (35.3 per cent). Of 302 patients with a positive family history of diabetes, 164 (15.8 per cent) gave a hereditary history and 138 (13.3 per cent) only a familial history. Adult Jewish diabetic patients (aged 20 or more) show 28.6 per cent diabetic heredity: 15.3 per cent hereditary and 13.3 per cent familial. Jewish patients show a higher frequency of the familial type of diabetic heredity regardless of age. The ratio of women to men is nearly 2:1. Of twenty married couples with diabetes, from the ages of 48 to 77, two couples had no children, and six of the remaining eighteen had one diabetic child each. In the majority of the Jewish men and women diabetes developed between the ages of 50 and 54, the same age Joslin found for all his men and women patients. A study of the A and B blood groups and the M and N blood types has been carried out in some diabetic patients in order to determine whether there is any relation between the diabetic constitution and the known blood characters. The data are not considered conclusive but it may be said that the distribution of the blood types M and N and the blood groups A and B in diabetic patients shows no striking difference from that in nondiabetic patients already reported in the literature.

Heart Block from Thyroid Extract.—Aisner and Dorsey cite a case of complete heart block following an overdose of thyroid extract taken for obesity. A review of the literature since 1882 shows ten cases of complete heart block developing during the course of true hyperthyroidism but no cases in which the block was induced by the administration of thyroid extract. The transient nature of the heart block in the case reported suggests that the disturbance may be a function of reversible chemical changes in the myocardium rather than of morphologic alterations. The case illustrates what may be expected from the uncontrolled use of thyroid extract in the treatment of obesity.

New York State Journal of Medicine, New York

39: 1637-1706 (Sept. 1) 1939

Multiple Traumatic Ulcers Superimposed on Postosteomyelitic Scar of Tibia: Successful Plastic Repair. D. Warshaw, New York.—p. 1643.
Atypical Surgical Abdomen. M. Frieberg and R. L. Siegel, Brooklyn.—p. 1646.
*Use of Flask as Simple Aid to Tactile Fremitus. N. E. Reich, Brooklyn.—p. 1654.
Problem of Aftercoming Head in Obstetrics. R. J. Lowrie, New York.—p. 1655.
Agranulocytosis Due to Sulfanilamide. J. Taub and L. Lefkowitz, New York.—p. 1659.
Chronic Meningococcemia: Report of Case. J. J. Friedman and J. A. Buchanan, Brooklyn.—p. 1662.
Gaucher's Disease: Brief Review of Disease with Report of Case in a Male. R. C. Schleussner and C. F. Schnee, New York.—p. 1665.
*Hematogenous Tuberculosis. E. W. Billard, New York.—p. 1670.
Use of X-Ray in Diagnosis of Placenta Praevia. A. C. Beck and F. P. Light, Brooklyn.—p. 1678.
Cancer of Cardia, Roentgenographically Considered. W. H. Stewart and H. E. Illick, New York.—p. 1685.

Flask as Aid to Tactile Fremitus.—Just as the stethoscope has been an improvement over direct auscultation, Reich found that a 100 cc. Erlenmeyer flask was capable of increasing and localizing tactile fremitus. The flask conveyed the vocal vibrations from the wall of the chest to the hand in a most satisfactory manner. This was found to be especially suitable because of the thinness of the glass, the smooth, small localizing mouth flaring out at the base to cover a large area of palmar tactile endings. Less satisfactory was a 75 watt electric light bulb. The flask or bulb is applied lightly to the various regions of the wall of the chest with gentle pressure on the base with the open palm (ulnar side of the hand) or fingertips, with the patient repeating a short phrase of words or numbers. The usual variations exist; increase or decrease of tactile fremitus in pathologic conditions has the same interpretation as that done with the hands only. The flask can prove useful in helping to localize small or early lesions of the lungs.

Hematogenic Tuberculosis.—Billard discusses the clinical aspects, pathologic changes and pathogenesis of hematogenic tuberculosis and in summary points out that pulmonary tuberculosis resulting from infection by way of the blood stream produces a clinical entity separate and distinct from the disease acquired by the usual bronchogenic route. The condition may be acute generalized miliary tuberculosis, producing a fulminating fatal condition involving the lungs and other organs in the body, or it may be chronic miliary tuberculosis in which the demonstrable lesion is limited to the lungs, although extrapulmonary foci, especially in the bones, joints and genitourinary tract, may occur without clinical evidence. These pulmonary lesions may be of varying extent, are usually bilateral and have a tendency to symmetry and localization in the apexes and the upper lobes. Symptoms of pulmonary disease may be mild or absent. Chronic hematogenic lesions are produced by single or repeated disseminations of bacilli into the circulation from various sources, as caseating tracheobronchial nodes, the primary pulmonary focus or extrapulmonary foci. They may heal by complete absorption, diffuse, fine fibrosis or dense, discrete calcified deposits. On the other hand, the lesions may run a low grade chronic or subacute course or they may progress and break down, producing bronchogenic dissemination. Foci are created simultaneously in extrapulmonary organs. They may be of the abortive type or they may give rise to chronic low grade infection. In chronic hematogenic tuberculosis, acute fatal dissemination may occur at any time; however, in the majority of cases the course is mildly protractive and patients suffer less than those with bronchogenic infection.

Surgery, St. Louis

6: 327-490 (Sept.) 1939

Curability of Carcinoma of Stomach. L. Parsons and C. E. Welch, Boston.—p. 327.
*Pulmonary Embolism: Experimental and Clinical Study. G. de Takáts, W. C. Beck and G. K. Fenn, with technical assistance of Eunice F. Roth and C. Schweitzer, Chicago.—p. 339.
*Ovarian Tumors and Uterine Bleeding: I. Granulosa Cell Tumors. G. E. Seegar and H. W. Jones, Baltimore.—p. 368.
Cystadenoma of Ovary Incorporated Between Leaves of Mesosigmoid. E. A. Gaston, Framingham, Mass.—p. 389.
Simple Efficient Method to Diminish Incidence of Primary and Secondary Infection in Surgical Wounds. R. H. Jackson and R. H. Jackson Jr., Madison, Wis.—p. 398.
Lesions of Intervertebral Disk and Ligamentum Flavum of Lumbar Vertebrae: Anatomic Study of Seventy-Five Human Cadavers. T. Horwitz, Philadelphia.—p. 410.
Cellophane as Wound Dressing. E. L. Howes, Washington, D. C.—p. 426.
New Colostomy Spur-Crushing Clamp. J. H. Garlock, New York.—p. 428.
Clamp and Spur Crusher for Obstructive Colonic Resection. A. S. W. Touroff, New York.—p. 431.
Acute Intestinal Obstruction Caused by Nonabsorbable Suture Material. T. J. Snodgrass, Janesville, Wis.—p. 437.

Pulmonary Embolism.—De Takáts and his associates produced experimentally two types of fatal pulmonary embolism: one which plugs the terminal vascular bed and is characterized by cyanosis and dyspnea, and the other which represents an obstruction to the main pulmonary artery and exhibits a syncopal attack with pallor and a fall in the blood pressure. The possible mechanisms of death are analyzed. Atropine, papaverine and oxygen are helpful in the peripheral type of embolism. Electrocardiograms taken of dogs before and after the production of a massive pulmonary embolism present a picture resembling serious interference with coronary flow. The possible causes of this interference are reflex vagal inhibition of the heart, peripheral vascular collapse arising from pulmonary hypertension through the depressor nerve and right acute ventricular failure. In the authors' series of 100 cases of pulmonary embolism there were eighty-seven deaths and thirteen survivals. Of the fatal cases, death occurred in less than 10 per cent within the first ten minutes, thus allowing time for emergency measures. On the basis of their experiments they recommend a combination of atropine and papaverine to counteract the radiation of autonomic reflexes, which originate in

the affected lung. Oxygen is obviously useful in the peripheral type of embolism, in which vasomotor collapse is absent but cyanosis predominates. The commonly employed drugs epinephrine, neosynephrine, digitalis and strophanthin are discussed but not recommended. As manifest thrombosis of the veins of the pelvis and lower extremities is comparatively rarely seen in patients with massive pulmonary embolism and heparinization of a large number of postoperative cases is yet impossible, early and active interference with the autonomic reflexes may be the only available life-saving measure.

Uterine Bleeding and Granulosa Cell Tumors.—Seegar and Jones state that abnormal uterine bleeding in association with ovarian tumors has been analyzed as to cause and frequency in a group of 376 cases. The mechanism responsible for the abnormalities in menstruation varies with the pathologic type of ovarian tumor. The highest occurrence of abnormal uterine bleeding was found in association with the tumors of granulosa derivation. In thirty-five papillary granulosa cell tumors, 45 per cent were associated with abnormal uterine bleeding. Of the fifty-nine solid granulosa cell tumors, 62 per cent were found to be associated with menstrual abnormalities. In both groups in which endometrium was available, endometrial hyperplasia was the direct cause of the uterine bleeding. The hyperplasia is presumably produced by the estrogenic secretion of the tumor itself. A more careful study of the uterine endometrium, together with endocrine studies on the blood and urine of patients with ovarian neoplasms, will render valuable assistance in the correct classification of ovarian tumors.

Surgery, Gynecology and Obstetrics, Chicago

69: 257-416 (Sept.) 1939

Carcinoma of Cervix Treated by Roentgen Ray and Radium. J. V. Meigs and H. L. Jaffe, Boston.—p. 257.
Pathologic Features of Soft Tissue Fibrosarcoma, with Special Reference to Grading of Its Malignancy. A. C. Broders, Rochester, Minn.; R. Hargrave, Wichita Falls, Texas, and H. W. Meyerding, Rochester, Minn.—p. 267.
Surgical Gastritis: Study on Genesis of Gastritis Found in Resected Stomachs, with Particular Reference to So-Called "Antral Gastritis" Associated with Ulcer. R. Schindler, H. Necheles and R. L. Gold, Chicago.—p. 281.
Problem of Intractable Peptic Ulcer. F. G. Connell, Oshkosh, Wis.—p. 287.
Surgical Treatment of Acute Profuse Gastric Hemorrhages. H. Finsterer, Vienna, Austria.—p. 291.
*Malignant Tumors of Small Intestine: Study of Their Incidence and Diagnostic Characteristics. F. G. Medinger, Wrentham, Mass.—p. 299.
Oxygen Therapy in Reactions Following Barbiturate Anesthesia and Cisternal Intervention. J. G. Schnedorf, Detroit.—p. 305.
Management of Hematogenous Pelvic Osteomyelitis. J. Kulowski, St. Joseph, Mo.—p. 312.
The Mikulicz Operation—Development and Technic. R. W. McNealy and M. E. Lichtenstein, Chicago.—p. 327.
Surgical Treatment of Exophthalmic Goiter. E. Bernabeo, Bologna, Italy.—p. 333.
Clinical Aspects of Sacrococcygeal Teratomas. L. Chaffin, Los Angeles.—p. 337.
Conservative Treatment of Diabetic Gangrene. S. S. Samuels, New York.—p. 342.
Repair of Large Defects After Removal of Cancer of Lips. E. M. Daland, Boston.—p. 347.
Nontraumatic Paralysis of Dorsal Interosseous Nerve. L. M. Weinberger, Philadelphia.—p. 358.
Pulsion Diverticula of Hypopharynx: Review of Forty-One Cases in Which Operation Was Performed and Report of Two Cases. S. W. Harrington, Rochester, Minn.—p. 364.
Treatment of Carcinoma of Uterine Cervix. A. Grossman, Chicago.—p. 373.

Malignant Tumors of Small Intestine.—Medinger gives the incidence of malignant tumors of the small intestine found in the pathologic material of the New England Deaconess and Palmer Memorial Hospitals during a period of twelve years. In a total of 1,456 postmortem examinations, malignant conditions were found in 63 per cent. There were approximately 41,000 surgical specimens and in 20 per cent of these the primary diagnosis was malignant growth. A review of the same series shows only ten cases that came to necropsy with malignant tumors of the small intestine, or an incidence for all necropsies of 0.69 per cent. The surgical material shows twelve cases, an incidence for malignant neoplasms of the small intestine of 0.03 per cent of the total specimens and 0.15 per cent of the total malignant growths removed surgically. Three of these twenty-two tumors were of duodenal origin, twelve jejunal and seven ileac. Sixteen were carcinomas and six sarcomas. The author's analysis of 134 cases of malignant growths of the small intestine, including his own series, shows malignant tumors of the duodenum and ileum to occur slightly more frequently than malignant tumors of the jejunum. Carcinoma occurs most frequently in the duodenum and jejunum and sarcoma in the ileum. The clinical picture of carcinoma of the small intestine is variable. Biliary obstruction is most often seen with growths about the papilla of Vater, and intestinal obstruction with neoplasms of the lower duodenum, jejunum and ileum. Gross bleeding or occult blood in the stools is a frequent observation in malignant tumors of the small intestine. Any patient presenting signs of intestinal obstruction, change of intestinal habit or melena, in whom studies have eliminated any pathologic change in the esophagus, stomach, colon or rectum, should be carefully studied to eliminate the presence of a malignant growth of the small intestine. X-ray study with a special barium sulfate series of the small intestine is generally recognized as the best positive means of diagnosis but, by itself, is not infallible. Of the twenty-two patients, eighteen are known to be dead. Of the survivals, three patients are living and well with no recurrence for periods of eleven years, three years and less than one year. A fourth patient was living with no recurrence for one year and has since been lost to follow-up. The surgeon and the roentgenologist should look for malignant growths of the small intestine so that the proportion of cases diagnosed early and cured may be increased.

West Virginia Medical Journal, Charleston

35: 399-446 (Sept.) 1939

Diagnosis and Treatment of Irritable Colon. P. W. Brown, Rochester, Minn.—p. 399.
Obstetric Forceps. C. S. Bickel, Wheeling.—p. 404.
Coronary Disease and Coronary Thrombosis. C. G. Morgan, Moundsville.—p. 408.
*Preliminary Survey on Relation of Physical Defects to Scholastic Standing. A. C. Woofter, Parkersburg.—p. 413.
Pyloric Stenosis in Infancy. T. G. Folsom, Huntington.—p. 416.
Training for Emotional Health. E. F. Reaser, Huntington.—p. 418.
Pneumococcic Meningitis: Sulfapyridine Therapy, Recovery: Case Report. P. A. Haley 2d, Charleston.—p. 428.
Pneumococcic Meningitis Treated with Sulfapyridine and Specific Serum: Case Report. I. D. Cole and E. F. Hurteau, Clarksburg.—p. 429.

Physical Defects and Scholastic Standing.—Woofter studied the relation of diseases and defects to scholastic standing of 360 unselected students near the same age from various primary schools. The grades were obtained for the previous semester and classed accordingly as excellent, good, fair and poor. A separate list was compiled demonstrating the defects of each child. In plotting grades of the same number of students it was found that excellent students were absent an average of two and one half days while poor students lost twelve and one tenth days. This observation is again borne out by contrasting the number of children with infected tonsils having excellent grades, which is 10.5 per cent, with those of poor standing, 31.5 per cent. Among 159 students having normal tonsils, 18.2 per cent could be classed as excellent and 16.3 per cent as poor. Therefore infected tonsils can be considered detrimental, if for no other reason than loss of time from school. One group of 230 students contained 152 with unclassified defects, minor or major, with an increase of 25.5 per cent among the poor students over those of excellent standing. Serious eye defects are apparently the greatest scholastic handicap a student can have, since only 4 per cent having a visual acuity of 20/40 or worse were excellent students, while 44 per cent had a poor scholastic standing. With normal vision 16.8 per cent were doing excellent work and 17.6 per cent poor. Of 231 unselected students, 24.5 per cent of the excellent students had eye defects as contrasted with 40 per cent of those doing unsatisfactory school work. Testing with the Betts eye view apparatus revealed a variation of from 50 to 75 per cent of failures to have defective vision. Malnutrition, that is, a weight of 6 pounds (2.7 Kg.) or more below the accepted normal for the height and age of that particular child, cannot be regarded as serious, except that underlying physical or environmental conditions should be corrected. The curve for these children is somewhat less satisfactory than the class average. The relation of deafness to class standing could not be definitely studied as only sixteen cases were discovered, but only a few of these are known to be doing unsatisfactory work. There was such a small group of children with speech defects that no conclusions could be reached.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Dermatology and Syphilis, London

51: 343-404 (Aug.-Sept.) 1939

Classification and Definition of Clinical Varieties of Erythematodes (Lupus Erythematosus), with Particular Reference to Its Acute and Subacute Course. E. Urbach and Carmen C. Thomas.—p. 343.
*Use of Sulfanilamide in Streptococcic Dermatoses. J. M. Flood and J. H. Stokes.—p. 359.
Periadenitis Mucosa Necrotica Recurrens (Sutton); Ulcus Neuroticum Mucosae Oris (Löblowitz): Discussion of Condition with Description of Case. A. G. Fergusson.—p. 366.
Infection of Peacock with Erysipelothrix Rhusiopathiae, Followed by Case of Human Erysipeloid. Averil W. Greener.—p. 372.
Gowers' Case of Local Panatrophy. S. Barnes.—p. 377.
Chlor-Acne in Railway Workers. H. Haldin-Davis.—p. 380.

Sulfanilamide for Streptococcic Dermatoses.—Flood and Stokes present six cases of severe dermatitis in which cultures showed hemolytic streptococci in significant numbers. These cases were treated with sulfanilamide and showed definite improvement. Hospitalization is indicated for proper treatment and control of complications. Other etiologic factors must be considered and, after the condition is brought under control with sulfanilamide, they must be dealt with.

British Journal of Ophthalmology, London

23: 505-584 (Aug.) 1939

Intracapsular Extraction of Cataract with Forceps: Is Its Use Justifiable? R. Buxton.—p. 505.
Analysis of Judgment of Relative Position (Preliminary Communication). P. C. Livingston.—p. 540.
Disablement and Social Conditions of Patients with Past Syphilitic Interstitial Keratitis. Esther Dalsgaard-Nielsen.—p. 544.
Treatment with "Glaucosan" of Cases of Glaucoma Operated on Without Success, and of Complicated Cataracts. C. Hamburger.—p. 557.
Double Vision After Squint Operation. Alice Sternberg-Raab.—p. 568.

British Journal of Radiology, London

12: 505-568 (Sept.) 1939. Partial Index

Radiographic Demonstration of Circulation Through the Heart in the Adult and in the Fetus, and Identification of Ductus Arteriosus. A. E. Barclay, J. Barcroft, D. H. Barron and K. J. Franklin.—p. 505.
Suggestions for Radiodiagnosis of Fractures of Labyrinth: Medicolegal Importance. C. Chaussé.—p. 536.
Intensity of Radiation and Selective Action. J. van Roojen.—p. 547.
Rapid and Convenient Method of Checking Kilovoltage in X-Ray Therapy. D. E. A. Jones.—p. 554.
Radium-Needle Threading Apparatus. R. K. Scott.—p. 559.
Radium Plaque Accessory. R. K. Scott.—p. 562.

British Medical Journal, London

2: 383-432 (Aug. 19) 1939

Varicosities of Veins: Choice of Treatment and End Results. L. Rogers.—p. 383.
Nervous Disorder After Injury: Review of 400 Cases. J. Ramsay.—p. 385.
Structure and Functions of Synovial Membrane and Articular Cartilage. A. G. T. Fisher.—p. 390.
Relation of Anterior Pituitary Gland to Carbohydrate Metabolism. F. G. Young.—p. 393.
Ocular Reaction to Foreign Protein: Account of Slightly Unusual Case. T. G. W. Parry.—p. 396.

2: 433-476 (Aug. 26) 1939

Toxic Goiter. C. A. Joll.—p. 433.
Postpartum Hemorrhage, with Special Reference to Partial Detachment of the Placenta. R. M. Corbet.—p. 438.
Preoperative and Postoperative Treatment of Hepatobiliary Diseases. B. O. C. Pribram.—p. 441.
Nephrectomy with Partial Resection of Other Kidney. R. C. Begg.—p. 445.
*Alternating Hemiparetic Migraine Syndrome. J. B. Dynes.—p. 446.

Alternating Hemiparetic Migraine Syndrome.—Dynes records the cases of a mother and daughter who suffered from migraine and paralysis on the side opposite to that of the headache. They usually were warned of an approaching attack by prodromes: general malaise and chilliness. The attack itself was ushered in by numbness, tingling, marked weakness and loss of power in the arm and leg opposite to that of the headache. The migraine was not always on the same side, but the paralysis was always on the side opposite to it. Three years ago, at the age of 46, the mother was treated with radium for a uterine carcinoma. Her menses stopped. She has had no migraine headaches since and is in fairly good health at the present time. The daughter has noticed that a severe migrainous headache seems to be precipitated whenever her menstrual period is irregular and runs over the usual interval of twenty-eight days. Ergotamine tartrate (0.0005 Gm.) given intramuscularly at the onset of one of her attacks altered the syndrome, as no hemianopia or paralysis of the extremities developed. The headache, nausea, vomiting and confusion which always accompanied the attacks were not relieved. The patient is being treated with estrogenic substance in an attempt to regulate her menses and also to evaluate, if possible, the effect on the migraine syndrome.

2: 551-592 (Sept. 9) 1939

Genito-Urinary Infection in Childhood. W. Sheldon.—p. 551.
Anesthesia in Dental Surgery. Freda B. Pratt.—p. 555.
Cerebrospinal Fluid in Anterior Poliomyelitis. Joan C. Drury and A. F. Sladden.—p. 557.
*Acute Yellow Atrophy of Liver: Two Cases, with One Recovery. E. Townsend.—p. 558.
Puerperal Agranulocytosis Following Sulfanilamide Treatment: Record of Fatal Case. I. K. Gayus, V. B. Green-Armytage and J. K. Baker.—p. 560.
*Postoperative Treatment of Appendicular Peritonitis with Sulfanilamide and Its Derivatives. D. C. Corry, A. C. Brewer and C. Nicol.—p. 561.

Acute Yellow Atrophy of Liver.—The two cases of acute liver atrophy that Townsend cites present certain features in common. Both occurred in puerperal women, in both a small amount of chloroform had been given and in each case the onset of symptoms had been preceded by vomiting with restricted food and fluid intake. In the first case the period of restricted intake was three days, but it was at a time when a great deal of energy was being expended and the extent of the diminished intake and its significance were not appreciated at first. In the second case diet had been restricted for three weeks because of preeclamptic toxemia, and fluid intake had been minimal for twenty-four hours following induction of labor, because of postanesthetic vomiting. Each patient was partially exhausted and believed to have been partially dehydrated, though not to a degree recognizable clinically, and was given chloroform, a substance highly toxic to liver cells. The dangerous potentialities of chloroform in this respect have been shown by the work of Whipple and Sperry, Opie and others. It is suggested that these facts have an important bearing on the etiology of acute yellow atrophy: that exhaustion and dehydration are predisposing factors to hepatic damage, that a patient who is vomiting and dehydrated from whatever cause should be regarded as a potential candidate for hepatic atrophy, and that the administration of any protoplasmic poison or drug known to affect the cells of the liver be done with extreme caution, preferably preceded by saline dextrose intravenously. These cases also emphasize the importance of maintaining the strength and fluid intake of women during prolonged labor. Recovery of the second patient is attributed to the use of dextrose and abundant fluids and it is believed that the early and energetic use of dextrose and fluids is of prime importance in the treatment of acute yellow atrophy.

Sulfanilamide for Appendical Peritonitis and Abscess.—Corry and his colleagues report the results obtained with sulfanilamide in the treatment of twenty-six cases of general peritonitis (with a mortality of 11.5 per cent) and fifteen cases of appendical abscess with no deaths. These forty-one cases came from a series of 232 cases of appendicitis and the three deaths gave a mortality rate of only 1.1 per cent. Of the patients who died, only one at necropsy still had a general peritonitis of the lower part of the abdomen and this patient had been given what is regarded as an adequate dose of sulfanilamide. When toxicity due to sulfanilamide occurs, the drug must be stopped. In several cases anaerobic and actinomycotic organisms were present in the peritoneal cavity. Since sulfanilamide has been of value against these organisms elsewhere in the body, it is reasonable to suppose that it was of value also in appendical peritonitis.

Edinburgh Medical Journal

46: 509-580 (Aug.) 1939

Some Reflections on Pathogenesis and Treatment of Cancer of Breast. J. Fraser.—p. 509.
Radiologic Treatment of Breast Cancer and Its Metastases. J. H. Maisin, P. Estas and D. Line.—p. 529.
Effect of *p*-Aminobenzene Sulfonamide on Various Bacteria in Vitro and in Vivo. R. Knight.—p. 542.
Pulmonary Tuberculosis in Children, with Special Reference to Adult Types of Disease. J. A. Wilson.—p. 556.
Tuberculosis of Lungs in Childhood: Problems and Results of Treatment. C. Cameron.—p. 565.

Glasgow Medical Journal

14: 1-44 (July) 1939

Chemotherapy of Pneumonia by Sulfapyridine in Practice. J. Macrae.—p. 1.
Nomograms for Hematologists. G. H. Bell.—p. 16.

14: 45-96 (Aug.) 1939

Personal Experiences in Vascular Surgery. J. H. Pringle.—p. 45.
*Hemochromatosis: Two Cases. A. W. Harrington and Anne C. Aitkenhead.—p. 61.

Hemochromatosis.—Harrington and Aitkenhead report two cases of hemochromatosis; one came under observation because of diabetes and the other because of hematemesis. Lawrence has recorded a pedigree which suggests that hemochromatosis may be a sex-linked hereditary disease, transmitted by women, and affecting men mostly. However, the authors state that in their cases there was no suggestion of familial incidence. The blood copper was normal. The only certain etiologic factor was alcohol, in which both had indulged freely. The woman patient had a large cirrhotic liver with moderate ascites, and a severe diabetes with little tendency to acidosis. The man, who also had a large firm liver and marked diabetes, had two fairly severe attacks of hematemesis but no ascites. Pigmentation was marked in both and appeared to vary in intensity from time to time. The prognosis is said to be uniformly bad but the introduction of insulin may prolong life. Of the present patients, the man is working as a commercial traveler. The woman, who was in poor social circumstances, kept very well, with no recurrence of ascites until she contracted septic complications which caused her death.

Journal of Laryngology and Otology, London

54: 443-530 (Aug.) 1939

Otogenic Meningitis. T. Cawthorne.—p. 444.

Journal of Physiology, London

96: 233-366 (Aug.) 1939

Respiratory Accelerator Action of Carotid Sinus-Cardiac Depressor Mechanism. Ruth C. Partridge.—p. 233.
Further Observations on Release of Histamine by Skeletal Muscles. G. V. Anrep, G. S. Barsoum, M. Talaat and E. Wieninger.—p. 240.
Use of Dietary Anestrous Adult Rat for Assay of Estrus-Inducing Gonadotropic Substance. R. D. H. Heard and S. S. Winton.—p. 248.
Acetylcholine Synthesis in a Sympathetic Ganglion. G. Kahlson and F. C. MacIntosh.—p. 277.
Apparent Augmentation of Pituitary Antidiuretic Action by Various Retarding Substances. R. L. Noble, H. Rinderknecht and P. C. Williams.—p. 293.
Central Action of Anticholinesterases. A. Schweitzer, E. Stedman and S. Wright.—p. 302.
Effect of Hydrogen Ion Concentration on Stability of Antidiuretic and Vasopressor Activities of Posterior Pituitary Extracts. H. Heller.—p. 337.
Peripheral Action of Tetanus Toxin. A. M. Harvey.—p. 348.

Lancet, London

2: 549-580 (Sept. 2) 1939

*Trauma and Progressive Muscular Atrophy. J. W. A. Turner.—p. 549.
Treatment of Fractures by Local Anesthesia. H. Cullumbine.—p. 552.
Urethral Obstruction Following Prostatectomy. S. Power.—p. 553.
Accidental Transmission of Malaria to a Child by Injection of Blood. D. Nabarro and D. G. F. Edward.—p. 556.
Surgical Treatment of Facial Paralysis: Review of Forty-Six Cases. W. M. Morris.—p. 558.
*Picrotoxin in Treatment of Barbiturate Poisoning. J. L. Lovibond and G. C. Steel.—p. 561.

Trauma and Progressive Muscular Atrophy.—Turner says that the part played by trauma in the initiation of progressive generalized nervous diseases becomes occasionally subject to dispute in relation to workmen's compensation. In view of the lack of data derived from any notable series of cases, it seemed to him worth while to analyze a series of cases of progressive muscular atrophy to find out in what proportion a history of trauma exists. The term progressive muscular atrophy is taken to include amyotrophic lateral sclerosis and progressive bulbar palsy with muscular atrophy. The author studied a series of 100 consecutive cases. In thirty-seven cases there existed signs of progressive degeneration of the bulbar nuclei associated with generalized muscular atrophy and fibrillation either with or without evidence of involvement of the pyramidal tracts. Forty patients presented progressive muscular wasting associated with evidence of involvement of the pyramidal tract. Widespread muscular wasting and fibrillation of the classic type of progressive muscular atrophy without involvement of the pyramidal tract was observed in nineteen cases. Postmortem confirmation of the diagnosis was obtained in four cases. For purposes of control a second series of 100 cases of other organic nervous diseases were analyzed. These 100 cases included patients of the same age groups and sex groups suffering from various organic diseases of the nervous system in which trauma is not thought to be an etiologic factor. A table records frequency of trauma in the two groups of 100 cases. There was no history of trauma in seventy-nine cases of the group with progressive muscular atrophy and in seventy-eight cases of the control group. Thus the total number of cases with a history of trauma was practically identical. It was only when an arbitrary period of a year was taken that a small difference in favor of the group with progressive muscular atrophy was apparent. In five of the cases of progressive muscular atrophy there was a history of injury within a year of the first symptom, and in three of these the injury was within a month of it. The author reports the details of these five cases. He reaches the conclusion that trauma has no primary part in the causation of the disease but in a small minority of cases seems to precipitate the appearance of symptoms.

Picrotoxin in Treatment of Barbiturate Poisoning.—Favorable reports on the use of picrotoxin as a physiologic antidote for barbiturate poisoning induced Lovibond and Steel to try this method in a case of poisoning of this type. The results which they obtained with the treatment were so striking that they feel justified in reporting the case. A woman aged 35 had been found unconscious in bed in the morning, having probably been in coma since the preceding night. The diagnosis of barbiturate poisoning was made from the clinical appearance of the patient and was afterward confirmed by the identification of this substance in the cerebrospinal fluid (cobalt nitrate and Millon's tests positive). On admission she was in a deep coma, collapsed and failing to respond to any form of stimulus. Until it was possible to obtain the picrotoxin some three hours later, the routine treatment for hypnotic poisoning was initiated. This consisted of gastric lavage, lumbar puncture, intravenous saline solution and intranasal oxygen. However, no significant change was observed in the patient's condition and she was still in deep flaccid coma when the treatment by picrotoxin was started. This was given by intravenous injection in divided doses of 2 cc. of a 0.3 per cent solution. The picrotoxin was at first given intermittently for two hours until the patient had been fully stimulated into effectual restlessness. For the next ten hours it was discontinued until a gradual relapse required a further 18 mg. In the intervening hours and subsequently, until 10 p. m. two days later, 4 cc. of coramine (a 25 per cent solution of pyridine betacarbonic acid diethylamine) was injected intravenously at two hour intervals. A total of 54 mg. of picrotoxin and 112 cc. of coramine was given. The effect of the picrotoxin after every injection was dramatic and obvious, whereas no remarkable result was evidenced at any time from the coramine. The problem of dosage remains controversial but it seems that far larger therapeutic doses are both possible and safe. The authors gained the impression from this case that if it had been more severe they could with impunity have given larger doses of the drug. Intravenous picrotoxin should be given continuously until spontaneous movements, restlessness and a substantial decrease in the coma are apparent. After this, intramuscular injections may be sufficient to sustain the stimulatory effect. As a precautionary measure, barbiturates such as evipal or pentothal should be kept ready as a rapid antidote to an overdose of picrotoxin.

2: 581-628 (Sept. 9) 1939

Acute Rheumatic Carditis. W. T. Ritchie.—p. 581.
*Familial Adenomatosis of Colon and Rectum: Its Relationship to Cancer. J. P. Lockhart-Mummery and C. E. Dukes.—p. 586.
*Bacteremia Following Tonsillectomy. S. D. Elliott.—p. 589.
Production and Prevention of Cardiac Mural Thrombosis in Dogs. D. Y. Solandt, R. Nassim and C. H. Best.—p. 592.
Monocytic Angina (Glandular Fever) Treated with Sulfapyridine: Report of Case and Experimental Transmission. H. S. Stannus and G. M. Findlay.—p. 595.

Familial Adenomatosis of Colon and Rectum.—During the last fourteen years, Lockhart-Mummery and Dukes observed the course of adenomatosis of the colon and rectum in ten families whose histories convincingly demonstrate the general familial character of the disease and its close relationship to cancer. The starting point in each case was a person with adenomatosis. As complete a family history as possible was

obtained from the patient, information being asked particularly about the present health or cause of death of parents, grandparents, uncles and aunts. Almost invariably the patient was aware of the high incidence of death from intestinal cancer among his relations. As many of the surviving relations were seen as was possible and sigmoidoscopic examinations were carried out. It was impossible to find out whether or not deceased relations dying of cancer had also been affected by adenomatosis. Probably in most cases the fatal cancer was secondary to adenomatosis. Although this disease is familial, it does not manifest itself as a rule before childhood or puberty. The age at which adenomas begin to develop varies in different families. In twenty cases the average age at which adenomas were discovered was 22. The tumors were probably present for at least a year or two before they were discovered; so the average age at which adenomas developed may be taken as about 20. In two families recently investigated by McKenney (1936) the average age was 19½ years. Malignant disease secondary to adenomatosis is characterized by its early onset and the fact that more than one primary focus of carcinoma may be present. Among the general population it is rare for cancer of the rectum or the colon to develop before 40 to 50, but in families affected by adenomatosis it often begins to develop between 30 and 40 or even earlier. The age of death from cancer in adenomatosis families is also younger (42 years) by about twenty years than in the general population. As a rule in families affected by adenomatosis the tumors begin to develop at about 20 years of age, malignant changes may be expected about fifteen years later and untreated patients die from cancer in the early forties. From an observation of the genealogical tables it is seen that the disease may be transmitted by either sex. In most cases only one parent was affected. In two instances there is evidence that both husband and wife died of cancer and in most of the descendants adenomas developed at an early age. In one family having twins, symptoms of adenomatosis developed in both twins at about 30 years of age. One was treated by colectomy at the age of 41 but died from the operation. His twin sister died of intestinal cancer also at 41. The familial character of adenomatosis is not congenital in the ordinary sense of the word, since it does not manifest itself for several years; but it is certainly due to an inherited defect, and the most likely explanation seems to be that it is caused by a gene mutation. Evidence is steadily accumulating that tumors are the result of a genetic change in a normal growing somatic cell. This explanation is applicable also to adenomatosis, in which disease the genetic defect appears to be a tendency to a more rapid growth of the intestinal mucosa, leading first to hyperplasia and later to adenomas. Because of the more rapid growth of the intestinal epithelium there must be a greater frequency of mitotic division, and this again increases the probability of a further gene mutation which manifests itself as cancer. In a rapidly growing adenoma the chance of this happening is much greater than in normal mucosa, in which mitosis takes place only at comparatively rare intervals. The explanation suggests that familial adenomatosis is the result of an inherited instability of the epithelial cells of the large intestine, which renders their nuclei peculiarly liable to undergo mutation for excessive rate of growth. The treatment of adenomatosis presents a difficult problem. Constant medical supervision is necessary so that a radical excision may be undertaken as soon as a malignant change is detected.

Bacteremia Following Tonsillectomy.—Elliott noticed a transient bacteremia in thirty-eight of 100 patients within a few minutes of tonsillectomy. Bacteria were found in the blood regardless of whether the tonsils were removed by blunt guillotine or by dissection. The organisms isolated included Streptococcus pyogenes, Streptococcus viridans, Streptococcus pneumoniae, Haemophilus influenzae, staphylococcus and corynebacterium. Serologic matches for Streptococcus pyogenes recovered from the blood were isolated from the corresponding tonsils after their removal. Hemolytic streptococci were recovered from the tonsils of eighty-seven of 137 patients undergoing tonsillectomy (64 per cent). Of forty-four cultures of streptococci so isolated and examined serologically, thirty-nine (86 per cent) belonged to group A, one to group B, one to group C (Lancefield) and three could not be typed. The source for the common occurrence of transient bacteremias in man and animals and the possible bearing of these observations on the etiology of subacute infective endocarditis are indicated by the foregoing observations. Occasionally the causal organism in subacute infective endocarditis is of the hemophilus or parahemophilus group and that these organisms may be found in the blood after tonsillectomy is indicative. Of equal interest is the observation that pathogenic organisms such as Streptococcus pyogenes may circulate in the blood for short periods and in small numbers without producing any observable ill effect. The results of the tonsillar cultures here recorded suggest that some 60 per cent of patients admitted to the hospital for tonsillectomy carry Streptococcus pyogenes in the throat. Most of these patients had diseased tonsils, although it was not customary to admit cases for tonsillectomy within six weeks of an attack of tonsillitis. A carrier rate of about 60 per cent among patients admitted to the hospital for tonsillectomy emphasized the risk in otorhinologic wards of streptococcic cross infection, which a previous inquiry has indicated as happening not infrequently in the absence of special preventive measures (Okell and Elliott, 1936).

Medical Journal of Australia, Sydney

2: 267-302 (Aug. 19) 1939

*Inquiry into Effects of Occupation on Pulmonary Condition of Stone Masons. K. R. Moore and C. A. Kuhlmann.—p. 267.
Acute Cholecystitis: Study of Series of Cases in Which Conservative Methods of Treatment Were Used. V. M. Coppleson.—p. 274.
Portable All-Purpose Anesthetic Machine. A. D. Morgan.—p. 284.

Pulmonary Condition of Stone Masons.—Moore and Kuhlmann determined the clinical and roentgen pulmonary condition of 355 employees in the stone mason allied industries in New South Wales, Victoria and South Australia. This has been accompanied by inspection of working conditions and the taking of dust counts. The existence of industrial pulmonary fibrosis of two distinct types was revealed, as well as evidence of other more acute respiratory disorders which may be the result of occupational conditions. Of 268 masons examined, 111 were found to be suffering from pulmonary fibrosis of moderate or advanced degree or from tuberculosis. This quota comprised seventy-nine cases of moderate fibrosis of the diffuse type (pneumoconiosis), thirteen of advanced fibrosis of similar type, eight of advanced fibrosis of silicotic type, two of pulmonary fibrosis complicated by active tuberculosis and one case of active tuberculosis only. The remaining cases were of doubtful tuberculous lesions, either alone or complicating a fibrosis. Cases of moderate fibrosis were not associated with incapacitation from work. Of the eight cases of silicosis detected, all except one were found among workers in sandstone, which has a high content of free silica (from 86 to 95 per cent). Workers handling this stone were found to develop fibrosis earlier and in a more severe form than those using granite or other stones with a low free silica content. The incidence of pulmonary fibrosis in marble and limestone workers was very low. Groups of workers examined, other than masons, including polishers and sawyers, were relatively small; but there is evidence to show that the disease develops among these workers. An apparently high incidence of emphysema and old or recent pleurisy was revealed by the roentgenograms.

New Zealand Medical Journal, Wellington

38: 231-300 (Aug.) 1939

*Symptoms and Diagnosis of Cancer of Body of Uterus. K. Mackenzie.—p. 234.
Morbid Anatomy and Treatment of Cancer of Body of Uterus. C. Chapman.—p. 238.
Factors Which Govern Proper Nutritional Management. J. A. Pollia.—p. 244.
Normal Lead 4F in Electrocardiography. J. D. Cottrell.—p. 252.
Incidence and Prevention of Hydatid Disease in New Zealand. L. Barnett.—p. 256.
Diabetes Mellitus Associated with Diabetes Insipidus: Report of Case. G. E. Moloney.—p. 263.
Physiology of Water Balance. N. L. Edson.—p. 266.

Symptoms and Diagnosis of Uterine Cancer.—Despite the rarity of cancer of the uterus without bleeding, Mackenzie declares that it is imperative that curettement should be done in all cases of leukorrhea in which it is seen by the speculum that watery or purulent discharge is coming through the cervical canal. The size and consistency of the uterus have no vital bearing on the diagnosis of uterine cancer. In many cases there is no enlargement, but there may be enlargement, usually of a

uniform character, up to several times the normal size of the uterus. The mistake that the author has seen made has been in cases of enlargement of moderate degree in which a diagnosis of fibromyoma has been made, not corrected at operation, and supravaginal hysterectomy carried out at a level too near to the tumor for safety. He does not discuss the symptoms of advanced cases of uterine cancer. He believes that while the course which a disease runs should be sketched out for the student, the symptomatology of early disease only should be stressed and emphasized. Oversight in the diagnosis of cancer may be self excused on the ground that there were no pain, no ill smelling discharge and no deterioration of general health. The points of cardinal importance are that (1) irregular bleeding is the dominant symptom of carcinoma of the uterus, (2) such bleeding, at any age, must not be treated symptomatically and (3) the curet and the microscope must be used in diagnosis.

Practitioner, London

143: 237-356 (Sept.) 1939

Rheumatic Problem: Plea for National Campaign Against Rheumatic Diseases. L. S. P. Davidson.—p. 237.
Diagnosis and Treatment of Chronic Articular Rheumatism. F. D. Howitt.—p. 246.
Diagnosis and Treatment of Fibrositis and Neuritis. A. R. Neligan.—p. 263.
Diagnosis and Treatment of Trunk Sciatica. J. B. Burt.—p. 275.
Orthopedic and Surgical Aspects of Chronic Rheumatism. A. G. T. Fisher.—p. 286.
Laboratory Investigations in Chronic Rheumatism. J. W. Shackle.—p. 297.
The Abortion Report. J. Young.—p. 309.
*So-Called Obstetric Shock. C. D. Lochrane.—p. 317.
Advances in Medical Treatment of Congenital Pyloric Stenosis. R. Lightwood.—p. 326.
Modern Therapeutics: III. Calcium in Therapeutics. N. Morris.—p. 333.

So-Called Obstetric Shock.—An increased susceptibility to shock, Lochrane points out, is characteristic in labors associated with most of the toxemias of pregnancy. These conditions are held to be due to the circulation of incompletely disintegrated protein substances of fetal or maternal origin in the maternal blood. There is a toxemic influence in the development of the shock-collapse picture in the majority of instances. The cause of the shock not infrequently reported to follow a supernormal degree of hemorrhage in obstetrics as in other more general conditions may not, at first sight, seem to be explained on the foregoing suggestions, as, in obstetric instances at least, hemorrhage is by no means invariably associated with gross trauma or pregnancy toxemia. The obstetric conditions with which the shock-collapse syndrome is most often associated (e. g. toxic accidental hemorrhage, placenta praevia, acute inversion of uterus, manual removal of placenta) emphasize the fact that trauma and toxemia in some, and trauma or toxemia in others, is incidental in greater or lesser degree to labor associated with such abnormalities. A distinction between the preliminary or primary shock phase and the secondary collapse phase of the shock-collapse syndrome appears to be justified in obstetrics. The percentage incidence of fatal degrees of shock in obstetrics is not large in comparison with the total incidence of the condition. In the absence of gross trauma, lesser degrees of primary shock of a more or less temporary nature may arise from some minor operative intervention such as the giving of a rather hot intra-uterine douche or the lifting of the fetal head over an intact perineum. The opinion may be hazarded that in these temporarily shocked cases there is a nerve center disturbance with little or no subsequent traumatic toxemia. In many of the more profound cases of obstetric shock the patient's condition may improve temporarily in an hour or so without major resuscitative measures, only to relapse into a worse state, the early nervous phase having been succeeded by the later toxic collapse. The observation that shock may be experienced after minor interventions without demonstrable gross trauma, undue hemorrhage or pregnancy toxemia in obstetric conditions provides the conclusion that, quite apart from any of these predisposing complications, there is an intrinsic variation in the degree of susceptibility of different individuals to shock. This seems to apply to both phases of the condition. At times there are obstetric patients in whom the degree of shock experienced is out of all proportion to apparent stress of labor. Here, if anywhere, there is a justification for the use of the term "obstetric shock" in a particular and restrictive sense. In obstetrics there are other complicating conditions usually present which may well accentuate or even replace hemorrhagic and traumatic factors in producing a predisposition or an undue susceptibility to shock-collapse effects. Some of these are acidosis, a lowered carbon dioxide content of the blood, the extreme expenditure of muscular energy, waste products from muscular contractions and the blood-carbon dioxide reducing effect of most forms of inhalation anesthetics. It was shown by Yandell Henderson and later by Cannon that the fall in blood pressure which is a feature of shock is coincident with the lowering of the carbon dioxide content of the blood.

Bull. of Health Org., League of Nations, Geneva

8: 1-386 (Nos. 1 and 2) 1939

Report on Work of Health Organisation Between June 1938 and April 1939 and on Its 1939 Program.—p. 1.
Skeleton Standard Report on State of Health of Population and Factors Influencing It.—p. 63.
Rural Housing and Planning.—p. 87.
*Leptospiroses. B. Walch-Sorgdrager.—p. 143.

Leptospiroses.—In an extensive review on the subject of leptospiroses, Walch-Sorgdrager declares that the study of the disease was placed on a sound basis only when the specific cause was discovered by Inada and Ido, who transmitted the disease experimentally to guinea pigs in 1913 and discovered the spirochete which they called Spirochaeta icterohaemorrhagiae in 1914 and demonstrated that it is the actual cause of the disease. However, Weil's disease is not the only form of human leptospirosis. In Europe, but more especially in other continents—first in Japan and later in the Netherland East Indies, Federated Malay States, Russia, Andaman Islands, Netherlands and Australia—diseases have been described which are more or less related to it, though occasioned by other leptospirae. The several forms in man, and those occurring in dogs, rats and other rodents, are discussed in some detail. The author also discusses the epidemiology of icterohemorrhagic leptospirosis in man and its clinical features, including incubation, clinical symptoms, complications, diagnosis, prognosis and treatment. Measures for the prevention of leptospirosis have been chiefly applied in countries in which the disease is prevalent, such as Japan, and also in countries in which it is not frequent but causes local epidemics, for example in slaughterhouses, baths and among sewermen and sugar-cane cutters. Some of these procedures are the prevention of contamination of the ground and surface water with rat urine, the destruction of leptospirae in nature and the protection of workers in infected districts by preventing the organisms from penetrating through the skin or mouth. In places in which drainage and other measures are impossible or when the infected district is too large for disinfection to be effective, vaccination should be resorted to, for example in factories, mines, slaughterhouses, in instances in which the ratproofing of buildings is too costly or deratization is ineffective, on sugar plantations (on some Australian plantations the annual incidence of the disease among cane cutters sometimes reaches 18 per cent) and among sewer workers. When the risk of infection is limited to an occupational group, vaccination becomes practical. By immunization laboratory infections, where contact with rats is frequent and infections sometimes prove fatal, may be avoided. Wani mentions that he inoculated 10,268 miners in a coal mine in Fukuoka, 2,259 of whom received only one injection. The vaccination generally caused only slight discomfort: 50 per cent were able to continue working, 33 per cent lay off for one or two days and a slight rise of temperature or at least a complaint of a local feeling of warmth was experienced by from 30 to 40 per cent of the miners. Inoculation with other kinds of leptospirae than that causing Weil's disease, which are not in themselves dangerous to life (such as the leptospirae of "mud fever" or nanukayami) is of no value, as their immunizing properties, if any, are insignificant against Weil's infection. These kinds of leptospirae produce pathologic conditions, which are undesirable accompaniments of preventive inoculation. It is preferable, even essential, to vaccinate only with killed cultures. Health education and propaganda (films, lectures and the like) and compulsory notification are obvious necessities for an earlier recognition of cases as well as the stamping out of epidemic outbreaks.

Presse Médicale, Paris

47: 1277-1284 (Aug. 23) 1939

*Anorexia Nervosa and Its Immediate Therapy. P. Chatagnon and P. Scherrer.—p. 1277.

Anorexia Nervosa.—Chatagnon and Scherrer discuss the symptomatology and therapy of anorexia nervosa. Persons affected are generally women between the ages of 15 and 25 years. The clinical picture presents the following features: gradual self restriction of food leading to extreme emaciation, with a possible decline from a weight of 132 pounds (60 Kg.) to 55 pounds (25 Kg.); excessive physical and mental activity in striking contrast with the physical deterioration; the growth of bizzare, onesided gastronomic tastes, e. g. for prunes, biscuits, olives, unseasoned salads and so on; complete apathy in the face of bodily degeneration. Food forcibly administered is rejected by self-induced exertions. Amenorrhea is present. Usually there is found a neuropathic heredity and an unfavorable family environment provoking, on occasion, an inferiority complex toward a successful member of the family of the same sex. In certain cases the psychosis may be prodromal to dementia praecox; the majority of the patients develop conditions bordering on obsession. The occurrence of death is exceptional; however, some investigators set the mortality rate at 13 per hundred. Relapse after recovery is always possible. The authors discuss and reject the various views of others of the nosologic classification of anorexia nervosa within the framework of an established neurosis; neither do they favor an endocrine etiology of the disease, in spite of parallel indications simulating anorexia nervosa. They differentiate particularly between anorexia nervosa and Simmonds' syndrome. In Simmonds' syndrome emaciation develops gradually without an appreciable food diminution or, in its incipience, with none at all; there is present only a simple loss of appetite or distaste for certain foods, which the patient may seek to overcome and for which the metabolic dysfunction of his organism penalizes him by diarrhea; mental disorders are late, characterized by melancholia and unaccompanied with physical self neglect. On the other hand, in anorexia nervosa emaciation is the direct result of a food refusal that excludes all cooperation of the patient to improve his condition, the patient not only forcibly resisting alimentation but deliberately regurgitating what he has consumed; mental disturbances are immediate and compatible with a high degree of alert activity. Even amenorrhea is of a secondary nature in anorexia nervosa. According to the authors, therapy consists in isolating the patient in a sanatorium or hospital, in artificial alimentation and in psychotherapy, to the exclusion of medicaments of all kinds. Therapy will vary according to whether the patient is in an advanced or an incipient stage of the disease. Artificial alimentation in both classes of patients consists, with due regard to the age of the patient, of two daily doses, preferably of raw sweet milk with the addition of the yolks of one or two fresh raw eggs, together with fresh fruit juices (lemon, orange and so on). To restore tissue balance, from 250 to 500 cc. of dextrose solution is daily administered subcutaneously for a variable period and occasionally physiologic solution of sodium chloride. Reeducation of the patient in the use of his muscles needs also to be done. In cases presented at once for clinical study, psychotherapy should be employed immediately and should enlist also the cooperation of the family physician. Readjustment of the patient to social and family environment after her release from the institution constitutes a problem.

Zeitschrift f. d. ges. experimentelle Medizin, Berlin

105: 657-783 (June 21) 1939. Partial Index

*Adrenal Capsule Lipoid Epinephrine Complex and Formation of Arteriosclerosis. W. Raab.—p. 657.

Bactericidal Effect in Urine of Certain Constituents of the Uva Ursi. G. Madaus and F. E. Koch.—p. 679.

Hydrostatic Pressure Action of the Bath on Circulation of the Blood. H.-J. Heite and E. Lerche.—p. 693.

Kinetics of Extrahepatic Bile Duct System. R. Bayer.—p. 702.

Quantitative Examinations of Ascorbic Acid Content of Endocrine Organs as Measuring Stick of Their Function. H. Winkler.—p. 723.

Effect of Various Kinds of Paprika on Kidney and Urinary Passages. Margarete Raunert.—p. 736.

Arteriosclerosis and Adrenal Capsule Lipoid Epinephrine Complex.—A close connection between the formation of arteriosclerosis and the functioning of the adrenal capsules has been frequently assumed, based on the following observations: arteriosclerotic changes in the vessels of youthful individuals with adenomas of the medulla or tumors of the cortex of the adrenal capsules and in Cushing's disease usually accompanied with hyperplasia of the cortex; degenerative changes in the arterial muscular layers of animals corresponding to mediasclerosis, produced by protracted injections of epinephrine; increased infiltration of cholesterol in the intima of the aorta of rabbits following administration of epinephrine; a tissue cholesterol fixing faculty of the cortex hormone; changes produced in the vessels by repeated implantations of the entire substance of the adrenal capsules, which however do not quite correspond to typical arteriosclerosis. Recent research drew the attention to the close morphologic, functional and even physical and chemical connections between the products of secretion of the medulla and the cortex of the adrenal gland. Investigations on the constrictive effect of lipoid epinephrine compounds directed Raab's attention to the problem of a lipoid-epinephrine complex presumably formed in the adrenal capsules and the characteristic way in which it affected the structure of the wall of the artery. He carried out experiments on groups of animals with lipoid epinephrine complexes obtained from the adrenal capsules of animals and from the serum of persons with arteriosclerosis and hypertonia, assuming that the lipoid epinephrine complex should likewise be present in the serum. The extracts did not contain free epinephrine or cholesterol and produced the following effects in experimental animals: increase of blood pressure; increase of blood sugar; general nervous irritation such as trembling, nervousness, eventually edema of the lungs and death; injury of the media of the aorta, such as necrosis and calcification; injury of the intima, such as loosening and thickening, and an increased deposit in the intima of cholesterol ingested with food. As to the modifying effect of lipoids on the epinephrine in the lipoid-epinephrine complex, a satisfactory chemical explanation is not available at present. On the basis of these results as well as numerous clinical, pathologic and anatomic data the following factors appear to be of importance in the etiology of arteriosclerosis: prolonged action of an adrenal capsule lipid epinephrine complex on the vessel wall; protracted ingestion of food with large amounts of lipoids and cholesterol in particular, whose deposit is increased by the adrenal capsule lipoid epinephrine complex; disposition of the vessels to the attacks of these injurious agents. According to the author, the frequent simultaneous occurrence of arteriosclerosis, high blood pressure and diabetes can perhaps be explained by the action of the adrenal capsule lipoid epinephrine complex.

Bibliotek for Læger, Copenhagen

131: 323-353 (July) 1939

*Measurement of Venous Pressure in Thoracoplasty Patients. K. S. Stein.—p. 323.

Venous Pressure After Thoracoplasty.—Stein tabulates the results of his bilateral determinations of the venous pressure of forty-six patients, thirty-six before and after the first session of thoracoplasty, twenty-two of these also before and after the second session, seven patients before and after repeated plastic operation several years after the first operation, one patient with thoracoplasty according to Monaldi, one patient with plombierung and one operated on for pulmonary abscess, with drainage; the conditions which might be assumed to play a part in the venous pressure are also noted. In the majority of the cases operation was followed by a rise in the venous pressure, usually brief, the venous pressure in thirty-one cases becoming normal on from the seventh to the seventeenth day. There was no definitely established relation between the height of the venous pressure and the operative course. Preoperatively increased venous pressure, the author says, is not always an indication that operation will not be well borne. Theoretically he ascribes the postoperative increased venous pressure to changes in intrathoracal pressure and stasis in the vena cava superior region, but he thinks there may also be other causes; in some cases heart disease may be at least partly responsible, since electrocardiographic changes were often observed, and the fact that in most of the cases there was a considerable fall in the blood pressure during the operation might point to changes in the peripheral circulation as a factor.

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Organization of the Small Hospital Library

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From time to time the American Medical Association [1] through the Council on Medical Education and Hospitals issues suggested lists of medical books and journals suitable for hospital libraries. Such libraries are now required in all institutions approved for the training of interns and for graduate study in the specialties. The library requirements of the private clinic and of various medical associations are similar to those of the hospital and can be considered with them. The Council in its recommendations discusses the organization of such a library only in the briefest way, leaving aside entirely the problem of the classification of the collection which would accrue if their suggestions should be followed.

The needs, aims and uses of the library in the hospital and clinic are special and differ both from those of the public library with a medical department and from those of the large medical library associated with a medical school or research institution. Its function is practical and clinical. In the hospital it exists for the use of the intern and the attending physician; in the clinic it is consulted by the staff for aid in the solving of the many problems that daily arise. Stress therefore comes on the fields of diagnosis and of therapeutics, and the requirements in the departments of fundamental medical science and medical research are not great.

The type of library here described has its chief role to perform in the small city more or less isolated from the large medical center. It is frequently impossible for the individual practitioner to purchase a sufficient number of books or to subscribe to enough journals to give him anything more than the most meager reference store. Too often he has but few books, and his journals are unbound, stored away and unavailable. Libraries in small hospitals generally are made up of gifts or brought together by the pooling of individual collections and are supplemented by unsystematic and intermittent new purchases and subscriptions. There is no paid librarian, the use of the material is not great, no organization exists and interest lags. It is doubtful whether many such collections justify their existence.

All worth-while journals should be bound. Periodical files are the most valuable part of any medical library. Here only is the living advancing front of medicine visible. Here only in many instances can be found that detail of information concerning specific subjects necessary for the most successful prosecution of medical practice. Periodicals, however, offer little difficulty in classification, for they may be placed simply on the shelves in alphabetical order, and all material which they contain is readily available through the *Quarterly Cumulative Index Medicus* and other indexes.

The chief task therefore in library organization has to do with classification of the store of books. These may be recent or old. The shelves tend to accumulate many volumes that appear out of date. Some of these, generally gifts of collections assembled a generation or two ago, are so old that their material is of historical interest only. Others, more recent but still not new, contain a surprising amount of valuable content applicable to modern practice. There is a tendency among medical men to consider solely works of very recent publication worth their attention. In a certain few fields, where changes are rapidly taking place, they are doubtless right, but with regard to the bulk of the fundamental information on which medicine rests they are not. Especially when such books are supplemented by the record of contemporary progress depicted in the periodical literature, they are still worthy of a place on the active working shelves. However, in a library used chiefly by interns, who may rely largely on textbooks, it should be seen to that these are recent.

From the Inlow Clinic.

Numerous suggestions and criticisms were made by Miss Bertha Bowlby, librarian, Carnegie Public Library.

1. Hospital Medical Library Suggestions, J.A.M.A. **108**: 1052-1059 (March 27) 1937; **102**: 1785-1791 (May 26) 1934; **92**: 1122-1127 (March 30) 1929; **84**: 980-983 (March 28) 1925. Jenkins, R. L.: Periodicals for Medical Libraries, ibid. **97**: 608-610 (Aug. 29) 1931.

Among the older books, a few will be found worthy of the title of medical classic, works deserving perusal on the basis of their own intrinsic value and persistent significance in the history of medicine. These should be culled out and placed in a separate division. Other older books will have value only as being representative of the medical knowledge of the particular time in the specific field represented, and of course there is little point to collecting these unrestrictedly. A few illustrative works for each field in each period will be found sufficient. Most of these older books will come within the nineteenth century, for they will have been derived largely from American sources. Books older than this again deserve separate space and, if rare and valuable, may be put under glass.

Information concerning the details of library cataloguing, and the getting ready of books for lending is easily available; it is given in sufficient fulness for the small library in the pamphlet issued by the Library Bureau.[2] It is chiefly with the classification of the books themselves that I am here concerned.

CLASSIFICATION OF BOOKS

Many methods of classification for medical libraries are in use and have been suggested; any one chosen will be found to be more or less arbitrary.[3] In 1920 the Medical Library Association adopted the Boston Medical Library Classification[4] as a standard for American medical librarians. It has much to recommend it, and it may seem superfluous as well as presumptuous to offer anything different. It has withstood the test of time and is in active use in many libraries. As is true of any good classification for general medical needs, it attempts to "refrain from any bias of an anatomical, physiological, clinical or surgical nature." The type of library which I am discussing possesses a bias, namely the clinical one. No more apology is needed in following it than in excusing the medical bias exhibited in all medical libraries with regard to knowldege in general. Libraries are of different sorts and exist for specific purposes. In formulating a classification primarily subservient to clinical requirements, however, it is still possible to have a system elastic enough to be adaptable to other ends.

The Boston schema has forty-two main classes denoted by numerals. Further division is carried out by the use of the alphabet, the second place in the notation being occupied by capitals and the third by small letters. This gives the possibility of twenty-six primary and twenty-six secondary subdivisions.

Phalen and Garrison present two main headings, "Basic Disciplines" and "Medicine and Subdivisions," under each of which in separate lists are given one group of disciplines as "Subject" and another group as "Congeners or Related Subjects." There is no further attempt at integration and no notation other than single arabic numerals given to the main topics under "Subject." Barnard, using the alphabetical method of notation, divides the whole field of medicine into twenty-six classes, with numerous divisions, subdivisions and sections. His classification obviously has been developed for the use of the very large institution, one rich in the field of tropical medicine and parasitology, and its basis is largely etiologic. None of these schemata seem to meet the needs of the small clinical library.

What are these needs?

Any system adopted must be simple and at the same time susceptible of indefinite expansion. It must be one that can be administered on occasion by the record clerk or clinic secretary, untutored in the intricacies of library management; it must be one by which the average physician rapidly and readily can find the material he wants without assistance; it must be compact yet comprehensive in that it must include all fields in which the physician is likely to seek help.

The classification of the Boston Medical Library was formulated with the idea of bringing "together under one heading all material of a special nature," so that everything "relating to a system of organs or individual organs, whether of an anatomical, physiological, pathological, clinical or surgical aspect, is put in one place." This is quite admirable so far as the systematic theoretical study of medical topics is concerned and doubtless fits well the requirements of many institutions. However, in a library made use of as an adjunct to active medical practice, such concentration hinders rather than expedites the clinician's work.

Furthermore, forty-two or even twenty-six classes are too many for rapid orientation. Letters are less easy to follow and to associate with certain topics than are numerals. Since 1879 the Dewey[5] decimal system has been in use in great numbers of public libraries. It has been elaborated on and added to in each subsequent edition until it leaves little to be desired for the needs of those general lay institutions

2. Miller, Zana K.: How to Organize a Library, ed. 8, Buffalo, Library Bureau Division of Remington Rand.

3. Garrison, Fielding H.: Libraries, Medical, in Reference Handbook of the Medical Sciences, ed. 3, 1915. Phalen, J. M., and Garrison, F. H.: Classification of the Small Medical Library, Mil. Surgeon **60**: 274-300 (March) 1927. Barnard, Cyril C.: A Classification for Medical Libraries, with Introduction, Local List, Index of Parasites and General Index, London, Percy Lund, Humphries & Co., 1936. Cunningham, Eileen R.: A Classification for Medical Literature, ed. 2, Nashville, Tenn., Cullom and Ghertner Company, 1937.

4. Boston Medical Library: Medical Classification, ed. 2, Boston, Boston Medical Library, 1925.

5. Dewey, Melvil: Decimal Classification and Relative Index for Libraries and Personal Use, ed. 11, Adirondacks, N. Y., Forest Press, Lake Placid Club.

for which it was designed. In it the whole field of knowledge is divided into ten classes (general works, philosophy, religion, sociology, philology, natural science, useful arts, fine arts, literature, history), which are subdivided and resubdivided decimally ad libitum. Medicine is given section in this classification, however, shows the organization of the medical field itself far from satisfactory from the clinical standpoint. The domains of anatomy, physiology and public hygiene are adequately and exhaustively treated, but many other fields are sadly neg-

System of Classification for the Small Library in Hospital and Clinic

Class 0		Generalia, Reference Works
	00	Bibliography
	01	Nomenclature, terminology and classification
	02	Dictionaries
	03	Languages, grammar, composition of scientific papers
	04	Encyclopedias — general
	05	Encyclopedias — medical
	06	Collections of tables, formulas, useful data
	07	Directories
	08	Atlases
	09	Commercial publications, price lists, trade catalogues
Class 1		General Science
	10	General works, scientific method
	11	Mathematics
	12	Physics
	13	Chemistry
	14	Geology, geography, meteorology
	15	Biology
	16	Anthropology, anthropometry, constitution, ethnology
	17	Psychology
	18	Sociology
	19	Philosophy
Class 2		Medical Science
	20	General anatomy
	21	Topographic anatomy
	22	Embryology
	23	Histology
	24	Physiology
	25	Physiologic chemistry, biochemistry
	26	Pathology
	27	Bacteriology, parasitology
	28	Serology, immunology, allergy
	29	Experimental medicine, research
Class 3		Medicine and the Medical Specialties
	30	Manuals, textbooks, systems in general medicine
	31	Infectious diseases, fevers
	32	Cardiovascular and renal diseases
	33	Diseases of the respiratory system, tuberculosis
	34	Gastro-enterology
	35	Diseases of the blood and lymphatic systems, hematology
	36	Dermatology, syphilology
	37	Endocrinology, diathetic and deficiency diseases, metabolism
	38	Pediatrics
	39	Neurology, psychiatry
Class 4		Surgery and the Surgical Specialties
	40	Manuals, textbooks, systems of general surgery
	41	Anesthesia, operative surgery
	42	Minor and traumatic surgery, first aid, bandaging
	43	Fractures and dislocations, orthopedic surgery
	44	Ophthalmology, otolaryngology
	45	Oral and plastic surgery, surgery of head and neck
	46	Neurosurgery, thoracic surgery
	47	Abdominal surgery
	48	Urology, proctology
	49	Gynecology, obstetrics
Class 5		Diagnosis, Technical Methods
	50	General works, medical and surgical diagnosis
	51	Symptomatology, semeiology
	52	Clinical methods, history taking
	53	Physical and instrumental diagnosis
	54	Laboratory diagnosis, chemical, bacteriologic and microscopic
	55	Electrodiagnosis, electrocardiography
	56	Roentgenologic diagnosis
	57	Postmortem examination, microtechnic
	58	Differential diagnosis
	59	Prognosis
Class 6		Therapeutics
	60	General works
	61	Personal hygiene
	62	Dietetics, nutrition, vitamins
	63	Pharmacology, materia medica, toxicology
	64	Vaccine and serotherapy
	65	Hydrotherapy, climatotherapy
	66	Mechanotherapy, massage, exercises, gymnastics
	67	Physical therapy, electrotherapy, actinotherapy
	68	Radium and roentgen therapy
	69	Psychotherapy, psychoanalysis
Class 7		Social Medicine
	70	Social medicine, marriage, sexology
	71	Public health, preventive medicine, racial hygiene, eugenics
	72	Epidemiology, geographic medicine
	73	Biometry and statistics
	74	Industrial medicine
	75	Medical jurisprudence
	76	Medical education, medical schools, museums
	77	Medical societies
	78	Medical economics, state medicine, health insurance
	79	Medical profession, medical ethics
Class 8		Medical History, Cultural Medicine
	80	General works in medical history
	81	General history, archeology
	82	The periods of medical history
	83	History of special subjects
	84	Biography
	85	Medical essays
	86	Philosophy of medicine, medical theory
	87	Classic works in medicine
	88	Illustrative works from the nineteenth century
	89	Special collections
Class 9		Associated Medical Fields, Miscellany
	90	Mysticism, faith healing, cults
	91	Tropical medicine and hygiene
	92	Military and naval medicine, aviation
	93	Comparative and veterinary medicine
	94	Dentistry
	95	Pharmacy, pharmaceutical manufacturing
	96	Nursing
	97	Hospitals, clinics, research institutions
	98	General literary works
	99	Medical miscellany, collected papers, transactions, reprints, government reports, etc.

the number 610 and listed under useful arts along with engineering, agriculture and domestic economy.

The decimal system used in this classification recommends itself immediately for adoption in spite of certain criticisms of its use. For instance, a misplaced point or a forgotten numeral works havoc. Errors of notation are possible in all systems, and this seems small justification for rejection. Study of the medical

lected, in fact just those most important in a working clinical library.

Any system of classification may have many valid criticisms leveled against it, and no general formula can be found which fits all needs. In presenting therefore a classification of my own, based on the Dewey system, with certain borrowings from many other sources, I appreciate fully that it represents solely the schema which has been found by experience to fit the

needs of one organization, the library of the Inlow Clinic. It is in the belief, however, that libraries very similar in their requirements to this one exist that the suggestions herein made are offered. This classification in outline form should be posted in a prominent place in the library. Furthermore, the ten main headings and many of the chief subheadings should be clearly indicated on the shelves by large labels. The shelves should be arranged so that the numbers follow in regular succession and little difficulty is experienced by any one coming into the library for the first time in locating the field he is seeking. Much material is thus readily available without consultation of the card index.

CATALOGUING OF BOOKS

Cataloguing in many instances may be difficult. Many works fall under more than one heading. It is best to place the book under that caption in which it appears to have most use in the individual institution. The whole spirit which should activate the clinical library is that of utility. Other headings under which a book may come are adequately taken care of by listings and cross references in the card catalogue.

It will be noted that this classification attempts an organic integration of medical knowledge and associated fields. It is functional and instrumental. In the formation of the classes and divisions I have followed in a broad way the order in which subjects are met in the course of medical education. From the standpoint of the intern this is desirable, for it is the sequence to which he is accustomed. First come the tools with which the physician works: indexes and volumes for ready reference, volumes on the languages, dictionaries and encyclopedias. The languages are the means by which medical writings in other tongues are made available. Preliminary bibliographic investigation is the sine qua non for the adequate tapping of periodical literature, and cyclopedias furnish rapid orientation in any subject. Then there is the broad field of scientific and medical knowledge in general. This is the material collected through the centuries, and it naturally falls into three groups: (1) the whole gamut of the natural and the social sciences with the exception of astronomy; (2) the medical sciences, those sciences which, though forming a part of other disciplines, nevertheless may be taken as integral parts of medicine itself, and (3) those subjects detailing the natural history and course of disease which constitute the true content of clinical knowledge.

Mathematics is the handmaiden of all the sciences; physics, chemistry and biology are at the basis of physiology and of pathology; geography, geology and meteorology have their role in geographic medicine and climatology; anthropology and psychology furnish material for the understanding of man himself; sociology is the basis for many problems in preventive medicine, public health, medical jurisprudence and medical economics, and true critical philosophy is the discipline which weaves all these things together into an organic whole for the development of an adequate scientific world view.

The listing of the medical sciences here employed is quite familiar, since it includes those subjects encountered in the first two years of the usual medical course. The field of experimental medicine and research naturally fits in with this group of distinctly scientific studies.

In the practice of curative medicine, so called, the end which hospital and clinic subserve, there are two elements: the store of knowledge with which the practitioner works and the technical means at his disposal for the recognition and the control of disease. These two fields greatly overlap, and many works, especially those on medicine, surgery and the various medical and surgical specialties, contain material concerning both. Though in theory the knowledge on which curative medicine is based forms one integrated whole, yet from the practical standpoint it is divided into medical and surgical portions. Surgery in the strictly philosophic sense is merely a branch of therapeutics, the operative treatment of disease. In practice, however, it has assumed such importance and taken unto itself so much of the content of medical knowledge and theory that it approaches or equals the domain of internal medicine itself, especially so far as hospitals and private clinics are concerned, and should therefore be given separate consideration in any clinical library classificatory scheme.

The field of medical knowledge and practice has been divided into specialties. According to whether the medical or surgical element in these (for each specialty contains something of both) predominates, they may be classified either as medical or as surgical specialties. This portion of the clinical library, which I have placed under classes 3 and 4, doubtless will outweigh any other, for it will contain many of the books forming the real working nucleus of the entire collection.

The real function of the practitioner on the hospital or clinic staff is the recognition and the treatment of disease processes. His literary working tools lie largely in the fields of diagnosis and of therapeutics. Prognosis may be taken as a part of diagnosis; there are few works devoted to this subject alone. Some specialties will be found to owe their existence to diagnostic and therapeutic needs. Such, for instance, are clinical pathology, roentgenology and physical therapy. The domains of diagnosis and of therapeutics are fairly well separated, but in making of them separate classes roentgenology, which consists of diagnostic and of therapeutic elements, is separated on the

shelves rather than located in a single place, which would be more desirable to a specialist who united the two fields in his practice. No matter what system of classification is adopted, it will be found that such separations will somewhere have to be made.

The clinician as a rule in consulting the library has some specific problem in mind. He may already have made a tentative diagnosis, for example of trichinosis. His knowledge of this subject, however, may be hazy, for it has been a decade since he has observed a similar case. He consults the library for systematic information on the subject. He will turn to the section on general medicine therefore, where he will find in sufficient detail the material to satisfy his immediate needs. The laboratorian to whom he sends a specimen of stool or blood for verification of his diagnosis will consult the division of laboratory diagnosis. Only if they are curious to know more of the life history of Trichina spiralis will the clinician and laboratorian consult the division of parasitology in the class medical science. There are degrees of need and interest exhibited by those who consult the library and gradations of the extent to which any subject may require investigation.

THE CLINICAL LIBRARY

The problem, on the other hand, may be a purely diagnostic one. The clinician may wish not to overlook any of the possibilities relative to a presenting symptom; he may desire to verify what he can expect from some particular test; he may already be reasonably certain that the case is a medical or a surgical one but still be not satisfied as to just what is going on. He will consult the diagnostic divisions. Or again he may have arrived at a diagnosis and be undecided as to what is the best procedure to follow in treatment. Just what may be expected in this instance from physical therapeutic procedures? He may know the drug or endocrine preparation he wishes to give; but in what form and in what dose shall he prescribe it? This patient desires to go to a certain resort for rest and recuperation and asks for information concerning it. This one needs a certain diet. To answer these questions and to meet these desires he will consult the therapeutic section.

This brief discussion shows how in a clinical library attempted concentration of all material concerning one topic in one place may hinder instead of expedite diagnostic and therapeutic work. A library of this kind is of more service when it is departmental, that is, when the classificatory division is made on the basis of the separation of the field of medical practice among various types of practitioner (internist, surgeon, ophthalmologist, urologist, roentgenologist, laboratorian, physical therapist, dentist, nurse) rather than on the basis of anatomic part or etiology. It leads to less confusion to have each specialist find the whole field in which he is primarily interested segregated in one part of the library without finding also before him on the shelves works concerning the topic in question treated from points of view which have little bearing on his particular approach.

In the classification here proposed, material on various topics is scattered purposely. If the practice of medicine in hospital and clinic were not itself departmentalized (specialized) this would be a serious drawback, but with conditions as they are this is not the case. It is seldom indeed that any one working in a clinical institution will consult the library to find out all that it contains about any one particular topic viewed from every possible approach. The place for concentration of all material concerning one subject is in the card catalogue and not on the shelves. For in fact the ideal of concentration aimed at in some classifications cannot be attained; some dispersion is inevitable from the very fact that most books discuss many topics but permit themselves physically to be put only in one place.

Medicine has broad social as well as individual personal functions to perform. There are those fields which have to do with the control of disease *en masse*, the topics of public health and preventive medicine; those which have to do with the application of medical knowledge to the solving of strictly social problems, such as the subjects of medical jurisprudence, criminology, juvenile delinquency. There is the domain of the relation of physician to patient, physician to physician and physician to society, medical ethics; that of the application of knowledge in a department of sociology, economics, to the problems of medical organization and practice. There is the charge of transmission of medical knowledge from one generation to another, medical education. All these I have segregated under the class social medicine.

Medical history is a part of cultural medicine. This subject has assumed such large importance in the field of medical bibliography that it deserves to be placed as a separate class. As a division under this are grouped all obsolete works of the nineteenth century. Besides being assigned their own distinctive notation, these volumes are classified according to the general schema, i. e. they likewise are assigned the number of the subject of which they treat. By this means two things are accomplished: 1. The seeker after recent information in any field does not find the shelf of his subject cluttered up by nonusable books. 2. He who is historically minded can find what he desires already separated for him. By this procedure gifts of old books can be put to their proper use.

The divisions of the last class, that of miscellany, are in a way parts of social medicine. Cults, hospitals, sanatoriums and pharmacies, as well as veterinary medicine, dentistry and nursing are social institutions. Yet on practical grounds they belong in a group by themselves.

Naturally in the artificial placing of the whole field of medicine in classes and divisions of ten there will be apparent crowding of subjects in one place and lack of sufficient diverse headings in another. From the standpoint of making material available this drawback is more apparent than real. Throughout, those subjects have been grouped together which are allied either organically on the basis of content or in accordance with medical custom. Thus ophthalmology and otolaryngology are placed together, neurology and psychiatry and so on. These fields are similarly united in the person of a single practitioner in many of the smaller medical centers. However, though two or more specialties in many instances are placed under the same division, they can be separated easily as the library grows by the addition of a distinctive further notation.

SUBDIVISION OF SUBJECTS

In order to present the classification in as simple a manner as possible I have offered here only 100 headings over the whole medical domain. Even small libraries, however, will find it desirable in certain fields to go beyond this. Besides classes and divisions, subdivisions and sections can be established by adding a decimal point and more numerals. The use of more than four digits will seldom be found necessary even in the largest libraries. It must be emphasized that subdivision carried too far becomes a hindrance instead of a help.

The method of further classification can be explained briefly. In the instance of two or more main subjects grouped together under the same two digit symbol, these topics can be separated by the addition of letters from the alphabet to designate them, as employed in the classification of the Boston Medical Library. Thus, for example division 44, class 4, becomes broken up into 44A ophthalmology, 44B otology, 44C rhinology, 44D laryngology, and so on.

Small hospitals today are largely surgical institutions. Surgery rests on the disciplines of anatomy and pathology. The human body is readily divisible into various structures and organs; pathologic processes are easily recognized as being of different kinds. Further classification in the surgical specialties therefore naturally makes use of these time honored divisions; the anatomic classification will vary with the specialty and the organs and body system involved; the pathologic classification is largely the same for all structures. The subdivsion is created on an anatomic basis and the section on a pathologic one. Thus, division 47, abdominal surgery, falls into subdivisions 47.0 general works, .1 abdominal wall, hernia, .2 peritoneum, .3 stomach, .4 intestine, .5 liver, .6 gallbladder and bile passages, .7 pancreas, .8 spleen, .9 mesentery, miscellaneous. The same method of subdivision is applied to thoracic surgery, urology, gynecology and other branches. The pathologic classification is .00 surgical and pathologic anatomy, .01 anomalies and malformations, .02 regressive and degenerative changes, .03 disturbances of circulation, .04 general inflammations, .05 specific inflammations, tuberculosis, syphilis, etc., .06 changes in lumen, position, size, .07 injuries, .08 foreign bodies, concretions and parasites and .09 tumors. Thus, for instance, a surgical work on carcinoma of the stomach would be labeled 47.39.

In other classes the basis of division cannot of course be anatomic and pathologic but must be suited to the material in hand. For instance, the division periods in medical history can be subdivided into .0 prehistoric medicine, paleopathology, .1 ancient medicine, .2 Graeco-Roman medicine, .3 Byzantine period, .4 Mohammedan and Jewish period, .5 medieval periods; .6 renaissance and reformation period, .7 seventeenth century, .8 eighteenth century and .9 modern period.

By subdivision and further elaboration, unlimited expansion can be taken care of, and, though designed for the use of the small library, the classification can be employed for the largest clinical collections.

It must be emphasized, however, that the particular system of classification adopted is not as important as the fact that any library larger than a certain minimum size has to be organized if any one other than the person who has seen to amassing it is to make maximum and effortless use of it. Systematization and order are requisites to all intellectual housekeeping.

18 West Washington Street.

Red Blooded Young People

A prime fascination of medicine is that it is a never ending study. Merely not to forget what you have learned cannot keep you ready for the obligations of medicine. Without forgetting anything that you learn in medical school, soon as physicians, surgeons, specialists, etc., you will become hopelessly behind the times, unless you continue to study. Not forgetting will not keep you from rapidly losing out in medicine; what you may know soon is apt to be completely outmoded by new discovery. In your medical school days, I dare say, this idea of a never ending study did not seem such a joy. However, how dull a profession medicine would be if in a four years study in the medical school you had learned all that was needed to practice the profession the remainder of your lifetime. That sort of a profession would not attract into it red blooded young people.—Christian, Henry A.: The Lure of Medicine, *Virginia M. Monthly* **65**:515 (Sept.) 1938.

Comments and Reviews

THE PRACTICE OF MEDICINE

Abridgment of an address by Dr. Rufus Cole, delivered at the commencement exercises of Cornell University Medical College, June 15, 1938, and published in Science, Oct. 7, 1938.

The subject of medicine is sufficiently important and the knowledge concerning it sufficiently well organized to justify its designation as a science, and its devotees are worthy to be called scientists. Under these circumstances it seems that medicine would be a proper subject to be taken into the university as a discipline worthy to be studied, even if all applications were entirely lacking.

The question remains whether there are reasons why future practitioners should pursue the subject from this point of view. It is possible that a student might, through repeated observation and didactic instruction, become familiar with the characteristic features of disease, that he might learn empirically the procedures employed in treatment and that he might through experience alone acquire skill in prognosis. Formerly this was about all that was attempted in the training of physicians. But the university and society at large now demand that physicians shall be familiar with what is known about the nature of the processes constituting disease and of the lesions associated with them. The phenomena of disease are natural processes occurring in conformity with the laws of nature, and these phenomena can be understood only by using methods universally employed in revealing the mechanisms of other natural events. These are the methods of science. Now are you trained physicians ready for practice?

You may have knowledge of the structure and functions of the human organism in health. You may be able to picture at a moment's notice the characteristic lesions of all diseases, to pass a perfect examination on the functional disturbances produced by all types of injurious agents, and yet you may not be a good physician. There is such a thing as the technic of practice and this technic you cannot learn in the true university medical school. No one except the self-deluded men who examine you for license to practice expects you on graduation to be proficient practitioners. This does not mean, however, that you are not well prepared to master the technics necessary to make you good physicians.

It is not easy to differentiate between the study of the science of disease and the practice of medicine. The practitioner is primarily interested in the diseased individual and he must concentrate attention on those features the importance of which has been demonstrated. The university student may spend days in the investigation of a single case. The practitioner must investigate, judge and act quickly. The university lays stress on complete understanding; practice lays stress on skill. It is not a question of treatment. The patient no longer employs a physician merely to have him administer remedies. But what he rightly demands, first of all, on the part of the physician is understanding of his entire constitution as an individual. The university student and the practitioner both are interested in treatment, but the practitioner is especially concerned with the technics employed in the individual case. Whatever the differences, the university student and the practitioner must both employ the methods of science. They must both have the scientific habit of mind, and this is especially what the university should give. Both must have curiosity, the desire to learn; both must have honesty, and both must be critical. Unverified opinion can have no place as guides to action.

If you have not yet acquired the technic and skill for practice, how are you to get it? It can be acquired only by practice itself and by hard unremitting labor. In earlier years the rudiments of the technic of practice were obtained by following a preceptor and, so far as it went, this was not a bad way.

THE WEAKEST LINK

Today the preceptor system has been replaced by the hospital internship and there are defects in the intern system. It is the weakest link in present day medical education. In most cases all the hospital does is to offer opportunities to the intern. The preceptor cared whether the student did or did not learn, the hospital usually does not care. But hospital physicians can be interested in the training of interns, to their own as well as to the student's great advantage. Hospital authorities can undertake more seriously their educational responsibilities.

In the first place the hospital can realize that its interns are highly educated, cultivated, serious men whose ambition is to serve the patients under their care and whose greatest desire is, through practice, to become technically skilful, more gentle, more humane, more wise. The hospital can provide facilities so that interns may live like cultivated men and students; this does not mean provision for higher standards of living but for higher standards of work and study. When visiting hospitals I have made a point of seeing the interns' rooms. Even in some of the most modern hospitals I usually find small, dark rooms, containing a bed, a chair or two, a small desk and a few books, and these mostly textbooks, remnants of the student life. I was surprised to find no evidence of any interests at all, even in science. To find that a

young man could have acquired a university degree and have no interests outside his daily job was a surprise. The hospital cannot create these interests but it can assume that the intern has them. The hospital should not treat interns as employees and provide to the minutest detail the kind and amount of work they shall perform. Interns must have freedom. This in large hospitals is difficult but not impossible.

I recall experiences under Osler. He was personally interested in every intern, considerate of their sensibilities and their time; he seized on the least evidence of curiosity in an intern, stimulated his interest and aided him with advice and help. His contacts with his interns were not confined within the wards. He never missed a meeting of the hospital medical societies. Above all he influenced the interns by his example. He taught them to become good doctors by being one himself. All practitioners connected with large hospitals come daily into contact with the interns. By spending a limited amount of time with them, by guiding them, by working with them, these practitioners may be of great educational service. Practitioners in a small place have the same opportunity to become great teachers as had Daniel Drake in the little Transylvania University beyond the mountains.

After all, whether interns become good doctors or not depends on the interns themselves. Our hospitals have arrangements for making all kinds of technical investigations. The intern becomes a part of this organization and he is able to use any one of a dozen different laboratories to aid him. This is useful but it carries with it dangers. The student begins to deal with formulas, with words, instead of with the things themselves. One of the chief disadvantages of the present arrangement is that when the intern becomes an independent practitioner this convenient arrangement will no longer be available to him. Aid he must have but it must be carefully chosen. At present a large part of the work of contributing services in the hospital is probably unnecessary. This results from the fear of omitting something. It is this fear of omission that impels taking the most minute and extensive histories and the recording of routine elaborate physical examinations, all of which occupy much of the intern's time and leave little opportunity for thinking and independent action. How many interns keep their own records of cases, classify them, think over them, formulate their own concepts and try to rationalize the methods of treatment they employ? Records of cases carefully abstracted, compared and digested are of greater educational value than random experiences, however exciting. To pass through your intern years in a fever of agitation, interested only in obtaining a rapid series of impressions, will add little to your real experience or improve your training for practice.

When I contrast the long lists of interns and residents in hospitals today with the handful of workers forty years ago, I cannot believe that the intern's life need be more strenuous today. The master word in the hospital, as in the university, is still Work.

Hospital days should be laborious days, but they may be also days of the greatest joy. For the first time you will come into a position of real responsibility for the lives of your patients. It is a cold individual who is not moved by this close contact with those in distress.

During the internship, the hospital should be your home, your workshop and your playground. Shun outside affairs that will complicate your life and disturb concentration on your work, rejoice if you are too poor to own an automobile to carry you from the straight road, avoid the movies, above all avoid entangling affairs of the heart.

A SCIENTIFIC ATTITUDE

The difficulties of maintaining a scientific attitude will be enormously increased once you have left the protecting walls of the hospital. Amid the distractions of domestic life, the competition in professional work, whether you will be able to continue to exercise the scholarly and scientific point of view will depend largely on the use you made of your hospital years. The best guard against retrogression is a constant desire to learn more about the real nature of disease and particularly about some one disease. Some of the most important medical discoveries have been made by men in active practice. The late Dr. Meltzer's example should impress you. For many years he drove about New York every day with a horse and buggy seeing patients and then spent all the time he could in a laboratory, during which period he made important contributions to medicine and physiology. After the Rockefeller Institute was established he went there to work. He died one of the most productive students of disease that our country has had.

The practice of medicine today is far better than it was forty years ago. Some put the blame for the defects on the present method of university education.

In interviewing students I frequently stand amazed by the fluency and skill with which they discuss the most complicated subjects of physiology and pathology and the latest discoveries in medicine. I sometimes wonder, however, whether the facts have been digested and transmuted into wisdom. A doctor should never be ignorant of any fact relating to medicine. But is this cramming scientific education or does it produce scientists?

Let the university heed that it turns out men who have the scientific habit of thought, not

merely men stuffed with facts; however, if the prevailing standards of practice do not fulfil expectations, let us not place the blame for it all on the university. The hospital, the visiting physicians and even the interns and practitioners themselves play parts in the training of good physicians.

We are still far from perfect. The future rests with you. May you continue to be scientifically and critically minded. May you continue to be students as long as you live.

THE ORIGIN OF THE MICROSCOPE

Abridgment of a paper by Dr. Russell L. Haden, published in the Annals of Medical History, January 1939.

The name microscope was suggested by a physician; three of the five great microscopists of the classical period were physicians; one of the first applications of the microscope was the study of medical problems by a physician. The microscope is an application of the science of optics. Books on optics were written by Euclid 300 years before Christ. The first person to mention the actual use of lenses for a definite purpose was the English monk Roger Bacon (1214-1294), who was the initiator of experimental physics.

The first important application of magnifying lenses was in spectacles, which were invented independently in Italy at about 1285 by Salvino degli Armati. An inscription in the church of St. Maria Maggiore in Florence says "Here lies Salvino degli Armati of Florence, inventor of Spectacles. May God pardon his sins. MCCCXVII." Perhaps the allusion to his sins refers to the fact that he kept secret the method of making spectacles.

The possibility of combining lenses for distant vision and for high magnification was discovered later and thus the telescope and compound microscope were invented. The discovery of both the telescope and the microscope belongs to Holland, although the first significant observations with both instruments were made in Italy.

The inventor of the compound microscope seems to have been Zacharias Janssen, who with his father was a spectacle maker in Middelburg in the Dutch province of Zeeland. Janssen discovered in 1590 how to combine convex lenses in a tube to make an instrument for magnifying minute objects and so invented the microscope.

Probably the oldest compound microscope in existence is now in the museum of the Zeeland Scientific Society of Middelburg. Harting, after a careful study, concluded that it is probable that this instrument was made by Janssen. Its greatest magnification is 9 diameters.

One of the most noted of the early microscope makers was Eustachio Divini. A Divini microscope made in 1672 is now in the Museo di Fisica, Padua. Another famous maker of compound microscopes in Italy was Joseph Campani of Bologna, a contemporary of Divini. Little was done in England in the way of making instruments until Robert Hooke in 1665 described his compound microscope. Hooke's microscope initiated a new era in microscopy. He ground his own lenses, constructed his microscope, made observations with it and drew his own remarkable illustrations. A microscope of this pattern used by Hooke is now in the South Kensington Museum in London. The compound microscope remained optically about as Hooke left it for more than a hundred years.

Leeuwenhoek excelled all other early workers in making simple microscopes because of his skill in grinding lenses. He never described his method of grinding. When he died in 1723 he bequeathed to the Royal Society of London a cabinet containing twenty-six microscopes equipped with double convex lenses magnifying from 40 to 160 diameters. Leeuwenhoek at his death had 247 complete microscopes and a total of 419 lenses. His observations were first communicated to the Royal Society of London by letter in 1673.

The most successful of all early simple microscopes is associated with the name of Wilson, although not original with him. This type was first made by Tortona. Wilson's microscope was first made in 1702.

The further development of the compound microscope is due largely to English instrument makers. The next important microscope after Hooke's was made by Marshall in London in 1693 with a magnification up to 100 diameters. Culpepper in 1730 suggested the three pillar type of stand. He also used a concave mirror in the optical axis of the instrument. Focusing was done entirely with the draw tube. The Cuff microscope first made in 1744 includes most of the features of the modern microscope. With this microscope the origin of the compound microscope may be said to end. The later history is one of development.

The most active early investigators with the microscope were members of the Academy of the Lynxes (Accademia di Lincei) in Rome, a scientific society formed in 1603. Among the members were Galileo, Fabio Colonna, a botanist, Francisco Stelluti, a scholar and naturalist, James Faber of Bamberg, resident in Rome as physician of Pope Urban VII, Francisco Fontana of Naples, an astronomer, and Gianbattista della Porta, who probably first suggested combining lenses to make the telescope and microscope (1589). It was Dr. Faber who first suggested the name microscope in a

letter April 13, 1625, to Federigo Cesi, president and a founder of the academy. The word perspicillum had previously been used to designate both the telescope and the microscope. Galileo had called his microscope an occhiale or occhialino. The first plate made with the aid of the compound microscope comprised observations on the bee made by Stelluti about 1630.

The first medical work based on the use of the microscope is the "Historiarum et observationum medico-physicarum" by Pierre Borel, published in 1563. His "Centuria observationum microscopicarum" records 100 microscopic observations, mainly on minute insects. This is the first book devoted to microscopy. Borel describes how he found ingrowing eyelashes which are invisible to the naked eye and the removal of which relieved conjunctivitis. This was probably the first practical use of the microscope in medicine. Singer suggests that Cesi and Borel should be looked on as the fathers of microscopy.

The first medical illustration with the use of the microscope seems to be in an article in the Acta Eruditorum published in 1686 entitled "Description of a New Microscope Made by Joseph Campani and Its Use, communicated by Dr. Schelftrateus, prefect in the Vatican Library, in a letter dated Rome, June 15, 1686." The illustration shows how the microscope was used in examining a wound.

THE STUDENT HEALTH SERVICE IN A MUNICIPAL UNIVERSITY

Abridgment of an article by Dr. Irvin W. Sander published in the Journal-Lancet, January 1939.

Strictly tax-supported municipal colleges and universities had their beginning in 1837 with the founding of the University of Louisville in Kentucky. At present about 20 per cent of college students in the United States attend municipal tax-supported institutions.

Since the beginning of the first student health service at Amherst in 1860 for the purpose of selecting students physically capable of engaging in athletics and sports, the scope of the service rendered by student health services to the student and to the school has gradually increased. The amount of responsibility assumed varies with the size of the college, its location and the underlying philosophy of its health obligation to the student. The older, larger and privately endowed schools have for the most part developed student health services which provide essentially a complete medical and surgical service for the payment of an annual fee. This broad interpretation of a college's obligation to the student is a form of health insurance.

The objectives of a student health service in a college may be outlined as follows:

1. Sufficient education and training of the student to enable him to care for his health intelligently, through hygienic and proper habits of living. The college health problem is not so much concerned with disease as with the fostering and increasing the strength of people not yet mature, so that a foundation may be laid for long, healthy lives.
2. Protection of the student body from contagious and communicable diseases.
3. Supervision of the sanitary facilities of the school buildings, dormitories and rooming houses.
4. Care of acute illness which requires emergency attention.
5. Physical examinations of all entering students to determine their fitness to participate in required courses of physical education and in the more strenuous elective intercollegiate athletics. Adequate records must be kept of all students and competent interpretation made of the results of the examination.
6. Assisting students in planning their course of study so that it will correlate with their physical and mental abilities. The prevention of overwork on the part of some students is often a necessity. As students seldom pay by their tuition the actual cost of education to the school, this phase of the student health service work may be interpreted as a safeguard of the capital investment of the institution. There is no economy in graduating students who will be shortly compelled to withdraw from the practice of their profession because of illness due to poor supervision of their health habits while attending college.

Fundamentally, the problems of the student health service in a municipal university are the same as in any school of higher education. The students are of the same age group and are no better nor any less prepared for college life than students of other schools. There is, however, less need for the broad administrative development of the health service in the municipal school that is found in the larger endowed school. Many of the city colleges have no dormitories; the few students attending the school from out of town find their own accommodations. As the school district is in a city, these rooming houses will be supervised by the local department of health and should not constitute a health problem to the university.

The fact that most students in a municipal university live at home makes the handling of their health a different problem than in the ordinary school. There will in most cases be a family physician who has cared for the student during previous illnesses and who has a better knowledge of the personal and family history than the student health service physician could hope to learn with his brief contacts. There is no logical reason why the family physician should not continue to care for such a student in the same manner he would have if the student had not enrolled in the university. The same thing may be said of hospitalization of a student.

The few cases of out of town students in the city university who require hospitalization can be cared for in an emergency by sending them

to the city hospital. The school is in this way saved the expense of erecting and maintaining an infirmary for ill students. This will perhaps make the health service less adequate in caring for the students than it might be; but, in general, local facilities will be sufficient to care for the few cases in which the school must assume some degree of emergency responsibility.

Wayne University, operated by the board of education of the city of Detroit, was formed by the union in 1934 of five colleges operated by the board. The Student Health Service was first organized in 1928 as part of the College of Arts and Sciences. Thorough physical examinations are made of all entering students, who are graded in accordance with the results of their physical examinations, and permission is given or withheld for participation in athletic activities. College sports are supervised by the health service and a physician is in attendance at all football games. Since its inception, the Student Health Service has become of increasing value to the students of the university. All physical defects found during the examinations and needing correction are referred to the parents and the family doctor for appropriate care.

The students of Wayne University are not given medical care within the usual meaning of that term. Emergency care is given, but subsequent treatment, if necessary, is referred to the family physician. Athletes competing or trying out for teams representing the university are given medical care to the extent of the facilities of the health service in the event of injury. When such facilities are inadequate, the student is referred to the family physician or to an appropriate specialist. In circumstances in which it is deemed advisable, the physician's fee is paid by the university. No hospitalization is offered to the students by the health service. A few beds are kept in readiness in the health service building for emergency illness, but the student is kept there only until arrangements are made for his removal to the home or to a hospital if necessary. These beds are available also to students assigned to regular rest periods during the day because of chronic ill health.

Education of the students in matters of health and hygiene is considered the main objective of the Student Health Service of Wayne University. An attempt is made during each personal interview to give authentic advice regarding personal health problems to the end that the student may better understand what can be done and where such aid may be obtained. During the past year 2,080 students were referred to their own doctors or dentists for appropriate care and, when the student had no family physician, aid was given in selecting one appropriate to the need from a list approved by the Wayne County Medical Society. It is felt that the student completes his four years in college with a better understanding of what medical science has to offer and a knowledge of how to utilize that information for his own benefit. He should by that time be on good terms with his family doctor, and every such contact made should be to the benefit of medical science, the physician and the patient.

Correspondence

UNEMPLOYMENT AND THE PUBLIC HEALTH

To the Editor.—I am a senior medical student expecting to graduate in June of next year. From my conversations with classmates I believe that a large percentage of medical students are aware of some rather distinct discrepancies between the things we have been taught in medical school and the things which we observe in the actual practice and interests of the profession.

First, we are taught—and for that matter have come to medical school believing—that the chief obligation and interest of the physician lies in the preservation of the health of the people of his country. One might almost say that the sole social justification for the existence of the medical profession in this country lies in the extent of its execution of its alleged purpose in striving to keep the health of the American people as high as is possible and consistent with our present medical knowledge.

Second, we learn that among the most important causes for a number of important diseases today—tuberculosis, rheumatic fever and others—are the social-economic factors of inadequate living standards.

The entire nation is now in the midst of a critical situation brought about by the merciless cuts in relief and public works budgets in the face of an economic situation which cannot reabsorb even a small fraction of the unemployed. We are daily faced with a rising incidence of conditions either directly or indirectly resulting from malnutrition and lowered living standards among a sizable percentage of the American people. As this situation continues, I am reasonably certain that we medical students are not alone in questioning the value of, or the justification for, the practice of medicine when the medical means which the physician has at his disposal cannot begin to touch the underlying cause of many of the cases of illness current today.

The medical profession constitutes a rather powerful political pressure group. It seems to me that, if the profession is to be consistent with its teachings and traditions, it is obligated to take up the fight for increased relief budgets and for socially responsible public works programs until a more fundamentally sound "prosperity" can be achieved. Medical care can be of little real value to several million people forced to eat on fifteen cents a day.

JAMES S. MAY, Rush 1940.

Medical College News

Medical schools, hospitals and individuals will confer a favor by sending to these headquarters original contributions, reviews and news items to be considered for publication in the Student Section.

The Victor C. Vaughan Dormitory at Ann Arbor

The Victor C. Vaughan House, the new dormitory for medical students at the University of Michigan, Ann Arbor, was opened for use at the beginning of the new academic year. One of a group of dormitories built recently at Ann Arbor, it offers accommodations for 139 medical students. The staff of the Victor C. Vaughan House includes a resident adviser who acts as an overseer of student life, three assistant resident advisers and a director-dietitian. The resident adviser is Dr. Henry S. Emerson, instructor in anatomy. The dormitory was named in honor of Dr. Victor C. Vaughan, who was for many years dean of the University of Michigan Medical School.

Beginning a New Year at Jefferson

The 115th annual session at Jefferson Medical College of Philadelphia was inaugurated September 20. Robert P. Hooper, president of the board of trustees, presided and the introductory lecture was delivered by Dr. David M. Davis, professor of genito-urinary surgery, on "Self-Reliance and the Medical Curriculum." The total enrolment is 498, of which number 145 are new students (135 admissions to the first year class and ten admissions to the third year class). The members of the first year class were prepared for medical study in sixty different institutions. Thirty-two states, Puerto Rico, Hawaii, Persia and Korea are represented. Announcement was made of the election of Dr. James R. Martin as James Edwards professor of orthopedic surgery, succeeding Dr. J. Torrance Rugh, who was made emeritus professor.

Medical Students' Musical Fraternity

The musical group at the University of Illinois College of Medicine in Chicago was first organized in 1931. After a few years this group was founded as a musical fraternity, Phi Mu Phi. The *Illini Scope* claims that this organization is the only musical organization in a medical school in the United States. A medical school in another state has requested permission to inaugurate the Beta chapter of Phi Mu Phi.

Family Doctors and Scholarships at Tufts

The award of four Commonwealth Fund scholarships to incoming students of Tufts College Medical School, Boston, was announced September 20 by Dr. A. Warren Stearns, dean. These provide $1,000 a year to one resident of each of the four northern New England states, on condition that the recipient agrees to practice in a rural community in his state for at least three years following two years' internship after graduation. The scholarships were awarded to George L. Cushman, Medford, Mass.; Eugene H. Wozmak, East Jaffrey, N. H.; Charles R. Blackburn, Brattleboro, Vt., and Stanley W. Staples, Gardiner, Maine.

The Charles P. Thayer Scholarship and the Elizabeth A. Riley Scholarship for second-year women students were awarded respectively to Miss Victoria L. Maxwell, Mamaroneck, N. Y., and Miss Winifred Sanborn, Boscowen, N. H.

Tufts College Medical School, which is one of three medical schools in the country chosen as recipients of the Commonwealth Fund scholarships, draws its student body largely from the colleges of New England. The announcement says that of 6,000 physicians trained in New England and settled in New England communities since 1900, one in three is a Tufts graduate.

Louisiana's Graduating Class

Of the sixty-two fourth year students of the School of Medicine of Louisiana State University who received the Bachelor of Medicine degree at the university commencement in Baton Rouge May 29, forty-six were from Louisiana. Twenty-seven already had the Bachelor of Science degree, eight the Bachelor of Arts degree, one the degree of Doctor of Dental Surgery and another the Doctor of Philosophy degree. The five students in the class who made the highest grades are, in the order of their standing, Joseph D. Lea, New Orleans; Samuel Zurik, Brooklyn; Eustace V. Chauvin Jr., Lafayette, La.; Robert B. Morrison, Austin, Texas, and Melville Rosenbusch, Richmond Hill, N. Y.

Loans to Students at Harvard

Funds have been established at Harvard Medical School, Boston, to which students in need of money may make applications for loans. Amounts up to $400 may be loaned to a student during any one year and up to a total of $1,000 during the course. Application should be made by May 15, but in an emergency it may be made at other times. Notes are payable two years after graduation and 5 per cent interest is charged. Loans are made to students in the second, third and fourth year classes whose records are sufficiently creditable to make it probable that they will remain in the school and will be able to repay the loan at the time arranged for. Recent matriculants may apply for their loans only in their second half year. Loans are rarely made to married students. Among the various loan funds are the David L. Edsall Revolving Loan Fund, the Charles William Eliot Loan Fund, the John Foster Fund, the Loan Fund of the Medical Class of 1879. Application should be made at the office of the dean of the medical school.

Harvard also has a great many scholarships to offer in the way of rewarding and aiding medical students. Most of these scholarships are open only to students who are members of the school at the time of application; however, in order to make it possible for young men of great ability and promise to come to Harvard Medical School, one or two Harvard Medical School National Scholarships are offered to incoming members of the first year class. The stipend carried by these two scholarships is sufficiently large, if necessary, to meet all the student's essential expenses. Successful applicants who maintain a high honor record at the school will continue to hold these scholarships throughout the course at the medical school. These scholarships are made possible by gifts from Edward S. Harkness and Dr. Daniel F. Jones. Direct application for these scholarships cannot be made, since all accepted first year students are considered candidates and the awards are made without reference to financial circumstances.

Harvard has available also fellowships for the purpose of aiding students, graduates or teachers in research or postgraduate study. Applications concerning all the foregoing should be made to the office of the dean, Harvard Medical School.

Medical Murals Presented to University of California

Murals depicting the history of California medicine were presented to the University of California at a special ceremony recently in the university hospital. The murals occupy all the free portion of the circular wall in Toland Hall above the demonstration pit. One wall shows the development of medicine in northern California and the other in southern California. The earliest Indians are seen emerging from their sweat houses, or being worked over by the medicine man. Gold rush medicine is the subject of a mural in the central background. Dr. Don Pablo Soler, Spanish surgeon of the late eighteenth century, is seen attending an Indian. The transition from these early crude forms of medical attention to the scientific procedures of today is skilfully made by the artist. Another central panel shows the first hospital of California, a crude shelter put up at San Diego in 1789 to succor members of the Portola expedition. The incident of James Ohio Pattie, old California trapper, vaccinating a number of early Californians against smallpox is also shown.

Darthmouth Personal

Donald deForest Bauer, Brooklyn, a sophomore at Dartmouth Medical School, Hanover, N. H., has been awarded a Mellville Cramer Foundation Fellowship and will study genetics at McGill University, Montreal, where he will be a candidate for a doctorate in both medicine and philosophy. Mr. Bauer is the son of Dr. John L. Bauer.

Loan Funds at Emory University

Emory University, Atlanta, Ga., has a number of loan funds which are used to assist worthy students, about which information may be obtained from the dean of men. It is difficult, however, to secure loan funds for students of medicine in the university except during the junior and senior years, on account of the length of time necessary for medical students to remain in school. The demand for assistance is greater than can be met by these funds, and a student who is able to do so should make previous arrangements for financial aid. University bills for tuition, fees and dormitory are payable by the quarter in advance. There is a matriculation fee of $5, payable only once. A student activities fee of $4.50 is collected quarterly, and the charge for tuition and fees is $112.50 a quarter. Each student must keep on deposit a damage deposit fee of $5 to guarantee against loss or damage of university property entrusted to him. Each student must provide himself with a microscope.

The charge for a single room in Dobbs Hall by the quarter is $30. Meals may be obtained in a cafeteria on the campus at from $17 to $25 a month.

Loan Funds at Marquette

The Father Noonan Student Aid Society administers a loan fund which is available only to seniors. The Mary Connor Student Loan Fund was established by the Wisconsin Council of Catholic Women for the assistance of women students and is ordinarily available only to juniors and seniors. Information may be obtained regarding these funds from the dean of men and the dean of women respectively. The university has a residence hall for women students from out of town known as the Alumni House and also a social center for women students known as Drexel Lodge, the latter providing study, rest and recreation rooms and facilities for serving luncheons. The Marquette Union is available for male students of the entire university. It provides a lounge, billiard room, banquet hall, refreshment counter, cafeteria and reception room. The union aims to foster genuine democracy among the students, to develop their sense of responsibility, to promote their powers of self government and to cultivate the social factors of harmony and refinement.

Estimate of Expenses at Marquette

Following is an estimate of about the lowest figures on the expenses for the school year at Marquette University School of Medicine, Milwaukee:

Tuition and fees	$450
Board and room	270
Laundry	50
Books and stationery	75
Microscope, per year (if purchased on instalment basis)	35
Incidentals	30
Total	$910

Portrait of Irvin Abell

At the graduation banquet of the University of Louisville School of Medicine, Louisville, Ky., the class of 1939 presented to the school an oil painting of Dr. Irvin Abell. Dr. Oscar O. Miller presented the painting, which was received by the dean, Dr. John W. Moore.

Student Health Service at Indiana

With the opening of the 1939-1940 school year, a student health and medical service was established at Indiana University, Indianapolis. Dr. Willis D. Gatch, dean of the Indiana University School of Medicine, has been named director of the program. The service will provide clinical facilities for all students in the university with attendant physicians and nurses, twenty-four hour provision for emergency calls, an x-ray laboratory, beds for observation cases and hospitalization.

Scholarship Available for Freshmen at Alabama

The local chapter of Phi Beta Pi medical fraternity has established at the University of Alabama School of Medicine, University, Ala., an annual scholarship of $90 to be awarded to some worthy freshman who has matriculated by May 1 for the next regular session of the school of medicine. A committee of Professors Carmichael, Foley, Goss, Graves, Hunt, Jeller and McBurney was nominated to make the award. For guidance of the committee the donors made the following statement:

> In making the award, it is the sentiment of the donors that the previous scholastic record and other qualifications of any student shall have been such that the award would be granted to a student who gave promise of a successful career in medicine; and finally, other things being equal, the award should preferably be given to a student, man or woman, who needed financial aid.

Research Assistantships at Louisville

Research assistantships of $135 each are allotted annually to seven students at the University of Louisville School of Medicine, Louisville, Ky., who distinguish themselves in research. Preference is given to candidates for graduate degrees.

Expenses at Vanderbilt

The average annual expenses of a student at Vanderbilt University School of Medicine, Nashville, Tenn., exclusive of clothes and incidentals, are estimated at from $800 to $1,000. Among the items making up this sum is the tuition fee for the year of $400, a contingent

fee of $10, a diploma fee of $5, a fee for the support of the Student Union of $5 and, for the fourth year students, a rental charge of $2 for academic hoods at commencement. Each student is required to possess a standard microscope, but to aid first year students in purchasing one the school will advance three fourths of the purchase price, to be repaid in three equal instalments at one, two and three years after the date of purchase. The necessary books cost about $50 a year. All students are required to provide themselves with hemocytometers and hemoglobinometers before the beginning of the second trimester of the second year.

Tests for Premedical Students at Minnesota

The Minnesota Medical Aptitude, the Strong Vocational Interest, and the Sophomore Culture Tests must be taken at the end of the second premedical year or in the first quarter of the third year. Students at the University of Minnesota may take these tests on the campus at a time to be announced in the official bulletin. Students in other colleges and universities should communicate with the University Testing Bureau to make arrangements for taking these tests. Fees are payable by the applicant.

The National Medical Aptitude Test is given in December of each year at the various universities and colleges of the country. It is best taken during the second or sophomore year in college.

Scholarships and Medals at Vanderbilt University

A Founder's Medal is awarded to the student in the graduating class of Vanderbilt University School of Medicine, Nashville, Tenn., who has attained the highest average standing in scholarship throughout the four consecutive years of study.

The Commonwealth Fund provides an annual grant as a scholarship fund for deserving medical students. The terms require that a student who receives such consideration shall agree to practice as much as three years in a rural area in Tennessee after graduation and after having served an internship of not less than two years. These scholarships may be renewed for each of the four years of medical study, but only bona fide residents and natives of Tennessee are eligible. Application blanks, which may be obtained from the registrar at the school of medicine, should be filed prior to March 1.

The Beauchamp Scholarship is awarded to the student showing the greatest progress in the department of neurology and psychiatry and who is otherwise worthy and deserving.

The Dr. Ben Witt Key Annual Award, amounting to $500, is made to the fourth year student who is among the five highest in scholarship and judged by the faculty to be outstanding in scientific ability, in character and in personality.

Internships in Baylor Hospital

Each year thirteen members of the graduating class of Baylor University College of Medicine, Dallas, are awarded internships in Baylor Hospital on their scholarship standing and personal fitness. This is a one year internship beginning July 1 and, according to the official bulletin of the university, offers exceptional opportunities for a broad clinical training in the treatment of a great variety of diseases. The 400 bed Parkland Hospital, which is jointly controlled by the city and county of Dallas, offers a combination graduated service of internship and residency extending over a period of two years.

The Opening of School at Ann Arbor

The ninetieth annual opening of the University of Michigan Medical School, Ann Arbor, was held in the School of Graduate Studies, September 25, on which occasion the president of the University of Michigan, Dr. Alexander G. Ruthven, introduced Dr. Francis E. Senear, of Chicago, who spoke on "Some Phases of Medical Education and Practice." A graduate of the University of Michigan Medical School, Dr. Senear has been head of the department of dermatology at the University of Illinois College of Medicine, Chicago, since 1925, and during the past year was president of the American Dermatological Society. Following the convocation address, Dr. Senear was granted the honorary degree of Master of Arts. At this time, also, the Sternberg Medal was awarded to Dr. Malcolm Block, of the class of 1939, for outstanding work in medical research and high scholarship.

Interns' Organization

The annual meeting of past and present interns of the San Diego County General Hospital was attended June 22 at the Emerald Hills Country Club by thirty-five physicians. Dr. Alfred J. Cooper acted as chairman, and a permanent organization was formed with Dr. Alexander M. Lesem, president. An appropriate greeting was voted for the incoming interns.

Transfer of Students from North Carolina

Only the first two years of the medical course are given at the University of North Carolina School of Medicine, Chapel Hill. It is necessary for the students to go elsewhere for the remainder of their studies. Following are the transfers which the students have made for the year beginning in September 1939:

Jesse Appel, Brooklyn, to New York University College of Medicine, New York.

Ralph M. Bell, Mooresville, N. C., to Jefferson Medical College of Philadelphia.

Daniel H. Buchanan, Chapel Hill, N. C., to Harvard Medical School, Boston.

Jesse B. Caldwell, Cramerton, N. C., to McGill University Faculty of Medicine, Montreal.

Henry T. Clark, Scotland Neck, N. C., to the University of Rochester School of Medicine, Rochester, N. Y.

Charles E. Cloninger, Claremont, N. C., to the University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore.

Joseph B. Crawford, Goldsboro, N. C., to Jefferson Medical College of Philadelphia.

Alfred M. Elwell, Camden, N. J., to the University of Pennsylvania School of Medicine, Philadelphia.

Benjamin F. Fortune, Greensboro, N. C., to Jefferson Medical College of Philadelphia.

Eugene F. Hamer, McColl, N. C., to the Medical College of the State of South Carolina, Charleston.

Pearl Huffman, Morganton, N. C., to the University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore.

Gilmer Mebane, Chapel Hill, N. C., to Harvard Medical School, Boston.

Ralph S. Morgan, Penland, N. C., to Rush Medical College, Chicago.

Max M. Novich, Newark, N. J., to the University of Louisville School of Medicine, Louisville, Ky.

Irene Phrydas, Greensboro, N. C., to the University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore.

Edwin A. Rasberry, Snow Hill, N. C., to the University of Pennsylvania School of Medicine, Philadelphia.

Mack Simmons, Chapel Hill, N. C., to the Medical College of the State of South Carolina, Charleston.

Emmet R. Spicer, Goldsboro, N. C., to Cornell University Medical College, New York.

Robert L. Stricker, Asheville, N. C., to the University of Pennsylvania School of Medicine, Philadelphia.

Edmund R. Taylor, Chapel Hill, N. C., to Johns Hopkins University School of Medicine, Baltimore.

Thomas G. Thurston, Taylorsville, N. C., to Harvard Medical School, Boston.

James L. Wardlaw Jr., Calypso, N. C., to New York University College of Medicine, New York.

Samuel B. Willard, Doylestown, Pa., to Long Island College of Medicine, Brooklyn.

Milton H. Yudell, New York, to Rush Medical College, Chicago.